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Structural Demand the Leading Feature

Pig Iron Is Quiet and Easy, but All Finished Lines Except Rails Are in Fair Demand

The splendid showing of earnings for the second quarter of this year made by the United States Steel Corporation should be a most effective answer to those who have been inclined to take a gloomy view of trade conditions. Such earnings could not have been made unless full specifications on contracts had been received. This is taken as proof that consuming interests generally have not made cancellations. The recession in prices of iron and steel this year has not been so largely due to shrinkage in business as to the great increase in productive capacity. This has been referred to before, but it is a fact which needs to be impressed upon the public.

The pig iron trade continues comparatively quiet, with little change in prices. Such buying of pig iron as is now being done comes from consumers whose purchases have been postponed until the iron was actually needed, and a particularly attractive officer then gets the business. This explains why some sales occasionally come to light which cover deliveries running over several months. Probably the largest transaction of the week was the purchase by a steel company in the Cincinnati district of 11,000 tons of basic and 3500 tons of Bessemer pig iron in addition to purchases it made in the previous week. Prices are easy, as the production of pig iron has not yet been sufficiently cut down to exert a stiffening influence on the market.

The demand for fabricated structural material is one of the most prominent features of the market in finished lines. It is a remarkable fact that more business of this kind is coming into the shops than is going out. The largest transaction reported during the week was 4600 tons of bridge work placed by the Chicago & Northwestern, which was divided between two fabricating companies. Bids on 10,000 tons for the New York Central terminal work in this city go in to-day. The number of small jobs steadily coming out is very large. The elimination of grade crossings in Cleveland, for which a bond issue by the city was favorably voted on July 22, will involve the use of quite a large tonnage of steel for viaducts. The work is to be started this fall. The tin plate trade is fully equal to the fabricated structural trade in point of the engagement of productive capacity.

The wire business is now excellent, new orders

and specifications being received in much larger volume than for some time. The heavy consumption of steel bars, which has so long been a noteworthy feature of the market, still continues. Buying of plates and sheets is in small lots, but the leading makers are receiving orders from all parts of the country, indicating a good consumptive demand. The plate trade is interested in a large contract shortly to come up for plates for riveted pipe for the water works of Los Angeles, Cal., involving about 20,000 tons. The wrought pipe trade is in fairly satisfactory condition, due to the very large orders recently placed for line pipe. Rail orders are neither large nor numerous, the contracts for the past week having aggregated only 3600 tons for the entire country. This, however, is not the time of the year to expect large tonnages.

Cleveland reports the placing of a contract for 400,000 tons of furnace coke for deliveries running over two and a half years, to be paid for on a sliding scale, based on the price of basic pig iron at Valley furnace.

A good buying movement is now on in electrolytic copper, and the price has advanced ¼ cent per pound the past week. Pig tin appears to be cornered, as the price for six days has been stationary, which is the first time that such a state of affairs has prevailed in a number of years.

The Copper Situation

Unless indications are completely misleading, the downward course of the copper market has been checked. Persistent reports are in circulation that the leading producers throughout the world are about to restrict production. The specific statement is made by those who should be well informed that the restriction will be at least 25 per cent. for the coming three months and 10 per cent. for the following six months. The producers themselves are reticent with regard to details, simply stating that the trade can draw its own conclusions when the price of copper is seen to be advancing and when copper securities are observed to be commanding higher values on the stock exchanges. The cause of this reticence is asserted to be the attitude of the United States authorities relative to trade combinations. Undoubtedly the copper producers are acting wisely in making no announcements of an agreement that can be traced to an official source, as an example has been given in the past week of the readiness of the Department of Justice to proceed against manufacturers who are even presumed to have rendered themselves liable to prosecution under the Sherman antitrust act. Despite the absence of such an official announcement, we have seen in the past few days an awakening of interest in copper securities and a stiffening in the price of ingot copper which would appear to indicate strongly the existence of a belief in high quarters that the copper market is no longer to be free from regulation. Additional evidence comes in the more cheerful views of leading domestic copper producers with regard to the outlook and the cabled reports of a firm belief abroad that restriction of production is positively to be effected.

The position of ingot copper has for a considerable period been the particularly weak feature of the general business situation. The producers have steadily gone ahead with their maximum output, although nearly every month the statistics of the Copper Producers' Association have shown an increase in the stocks of unsold copper. They have seen their prices crumble until only a moiety of the producers can show anything like a fair profit on their output, and the dividends of large companies are in danger of being wiped out. A very few of them have recognized the folly of thus sacrificing their resources and have cut down their production to some extent, but with these exceedingly few exceptions all have continued to push their operations in the ill-founded hope that their competitors may feel the strain of an ever declining market too great for them. Unrestrained competition has here shown its inevitable result. If persisted in much longer it would surely become destructive competition, which is deplorable from every standpoint.

Thus far the copper trade has escaped actual demoralization, but if the conditions of the first half of this year should be persisted in there must eventually be forced sales of ingot copper, in which event the price would probably drop much below the lowest figure thus far realized. This would of course be to the advantage of such consumers as are in financial condition to avail themselves of the opportunity to lay in cheap supplies, but they would then in turn make it exceedingly unpleasant for their competitors and thus the disturbance of trade would extend to a much wider field.

It is plain that restriction of production is now imperatively needed. A year ago there was some hope that the general improvement in business then in progress would bring with it such an increase in the consumption of copper that the surplus would not be greater than needed for the safeguarding of consumers' interests. But the tide of business improvement did not rise to a sufficient hight to accomplish this result, and it is now receding. With little hope in the immediate future for an adequate expansion of consumption, the producers are driven to rely upon themselves to check the growth of their surplus stocks.

The Export Iron Trade Prosperous

In contrast with what occurred when the American iron trade contracted after the panic of 1907, the present very gradual recession in the United States is not now being charged, either in Germany or in Great Britain, with any responsibility for iron and steel conditions there. Sentimentally, influences affecting in an important way the iron and steel consumption of the United States, which in the first half of this year exceeded the combined requirements of Germany, Great Britain, France and Belgium, supplied respectively by their home works, would affect the iron markets of all four countries. Thus far, however, the changes in our own iron trade have expended their force at home. Until estimates published on this side show better agreement as to the extent of the recession here and the probabilities in the remainder of the year, European onlookers can hardly be expected to draw definite conclusions. Yet it would not be surprising if the "American peril" were again an issue in British and Continental iron markets, in view of some of the pessi-

mistic cablegrams that have gone out concerning American business conditions and prospects, with the inference that more of our steel must find its outlet in the foreign trade.

What is clear in the record of international trade in iron and steel in the past six months is that consumption has been at a greater rate than in 1909. Germany, for example, increased her pig iron production from 6,252,489 metric tons in the first half of 1909 to 7,202,032 tons in the first six months of this year, or at a yearly rate of 14,400,000 tons, whereas 12,875,000 tons in 1907 has been the maximum for a calendar year, while the total for 1909 was 12,734,000 tons. The export trade is responsible for most of this increase. For the five months ending with May, this year, Germany's exports of iron and steel products, including machinery, were 2,087,101 tons, against 1,669,090 tons in the first five months of 1909, a gain of 25 per cent.

Great Britain's statistics of iron and steel exports in the first half of this year also show an important increase. Of pig iron and rolled products the shipments out of the country were 2,370,639 gross tons, against 2,083,135 tons in 1909 to June 30, and a valuation of £21,239,134 against £18,548,402. The increase is 287,000 tons and £2,700,000.

For the United States, as has been indicated in the statistics in our columns from month to month, the twelve-month ending with June was the banner year in exports of iron and steel. Counting only pig iron and rolled products, and taking no account of machinery and other iron and steel products which are not reported by weight, our exports in the last fiscal year were more than 1,400,000 tons, while for the year ending June 30, 1909, they were 1,058,794 tons. Our rail exports have been growing substantially, being 344,000 tons for the 11 months ending with May. We have also had a good increase in sheets and plates and in pipe and fittings.

What is said above applies only to international trade in iron and steel. The year has been notable also for its increases in practically all branches of international commerce. It is true that in some cases this increase only restores the conditions which existed before the financial depression of 1907-1908, but compilations of the Department of Commerce and Labor show that for many countries the figures of the year recently ended are materially larger than for any preceding year. It is entirely probable that 1910 will be the greatest year, both in tonnage and value of shipments in all the records of international trade.

Labor Bureaus as Shop Employment Offices

The Labor Bureau conducted by the Rhode Island Branch, National Metal Trades Association, is now acting as the employment office of numerous manufacturing establishments of Providence and vicinity, and hires a large percentage of their men. The results are notably beneficial, demonstrating the correctness of the national body in urging a concentration of effort in this direction. Joseph A. Holland, secretary of the branch, went into the details of this side of the system in a paper read recently before the National Metal Trades Association.

It is obvious that if all applicants for employment in the district must first register with the bureau and are sent thence to the manufacturers, the great evil of shops hiring men away from one another is largely eliminated. Of this Mr. Holland says:

> A practice calculated to cause ill will among manufacturers is that of pirating on each other for their help. Employees take advantage of this fact and are constantly shifting around, causing excessive rates to be paid by the employers who wish to retain their workmen. I have known a great many cases where the employees have positively no intention of severing their connections with their present employers, but call on some other manufacturer and secure a position, knowing that they can use this latter fact for the purpose of commanding an increase in wages from their present employers. When the employees know that they can jump from one shop to another at any time there is a constant feeling of unrest and dissatisfaction, and that makes it practically impossible for a manufacturer to maintain a good organization.
>
> The labor bureau in no way prevents a man from making a change, but, on the other hand, will assist any worthy workman to better his present conditions if the circumstances warrant it. . . . We have found that the men stick to their jobs much longer when they know that they have to apply to the bureau every time they sever their connection with a firm. They realize that too frequent visits to the bureau for positions will in no way add to their laurels on the records.

Doing away with the waste of material which comes with ignorance of the presence of workmen in a city looking for employment is treated thus:

> Is it not a fact that in a great many cases employees who are not referred to the bureau apply at two or three factories, which at that time may not need men of that type, but these same men may be badly needed by some other employer? You can readily see how the bureau could more quickly overcome the wants if they were directed to apply to the bureau, and when the employees in general realize that the different firms make all their wants known to the bureau, from ordinary mechanics to employer and the employee. In several cases we have shown former active union men the folly of trying to unload their stock in trade, which is their mind, muscle and skill, in a direction which offers no market for value given, but, on the other hand, we have proved to them the possibilities they could and have attained, and they are now most diligent and faithful workers for their employer's interests.

In this same connection is the economy of production gained in manufacturing plants by relieving the works of a large part of the duty of selecting new workmen, of which Mr. Holland says:

> Another very important feature to the employer is that the superintendent's or foreman's valuable time will not be taken up, as has been the custom in the old way, in talking to all applicants who may apply in the usual way, the majority of whom, perhaps, are absolutely incapable of filling the vacancies as existing. The secretary is paid for this work and the superintendents and foremen are paid for increasing production, improvement of facilities, decreasing costs, &c. We have found that when a department is crippled from a scarcity of help, then several other departments may be tied up for stock, parts, &c., that ought to be forthcoming from the department in question, thereby probably causing the manufacturer the loss of much money and possibly the cancellation of orders. If all applicants be referred to the bureau, in due course of time the person in charge comes to know the men personally and is therefore able to prevent trouble brewers, agitators, &c., gaining a foothold and controlling the situation in any shop. With this assurance of a dependable organization, you will be able to accept orders and quote deliveries unhampered and according to your factory's facilities.

Even where no branch of the Metal Trades Association exists in the smaller manufacturing communities employing a large proportion of skilled men, it is not difficult to see the advantages which would accrue from the establishment of a co-operative labor bureau, employing help for a number of works as far as the initial selection is concerned. Disadvantages might develop, but they would be overbalanced by the sharply defined benefits. Where unskilled labor predominates, the question is an entirely different one.

The migration of farmers from our Western States to Canada, which has received so much anxious consideration from bankers and publicists, appears to have

been checked. The scanty crops in the Canadian Northwest have, in fact, caused a stream of immigration from Canada to the United States. A correspondent in that section states that for some time hundreds of farmers have daily been leaving Alberta for their old homes across the border. It is further said that while we have heard much of the movement to Canada by our Western farmers, little has been published with regard to the discontented thousands who abandoned their Canadian lands and returned to the United States after a year's experience.

Western Canada Wants Reciprocity with the United States

TORONTO, July 23, 1910.—Sir Wilfrid Laurier's replies to deputations in the West on the subject of tariff revision and reciprocity with the United States are not agreeable to the manufacturing interests in this Province. It was not realized that the sentiment of the West was so strongly in favor of these lines of trade policy, and the Premier himself was probably surprised at the urgency of the appeals to abandon protection. It was known that the opinion of the West always leaned toward a low tariff, but in recent years there has been no very vigorous expression of anti-protection views. Possibly that was because the West was flourishing. But that part of the country is now on the eve of a harvest from which not more than half an average yield seems likely to be obtained. The hot, dry spell came at a critical time in the growth of the crop and did very serious damage. This somewhat depressing outlook may have stimulated the feeling of the people against the existing tariff. Also, public opinion in that country is always sympathetically affected by public opinion on questions of common interest across the line. There there has developed a strong reciprocity sentiment, and the western Canadian feeling may in some measure be in response thereto.

At Brandon the Grain Growers' Association of Manitoba presented to Sir Wilfrid a memorial in which they recalled his pledge of 1894 to abolish protection in accordance with the platform adopted by his party in the previous year, and in which they demanded the total abolition of protection. The president of the association also presented a separate memorial on the subject of reciprocity with the United States from which the following extract is taken:

> The farmers know that a lowering of our tariff, or freer trade with the United States, will be strongly opposed by the united strength of the protected interests which have developed such strength and grown to such power and wealth under our protective tariff and because of it. But these interests have shaped our fiscal policy too long. The farmers demand that these interests be accorded such protection as a revenue will allow and no more. The Western farmers will watch with intense interest the negotiations between the United States Government and our government regarding reciprocal trade between the two countries, and strongly urge that everything consistent with national honor to secure such a measure should be done.

Sir Wilfrid promises to lay the views of the association before the Finance Minister, and strongly urge upon the latter the importance of endeavoring to meet them.

At Yorkton, where the Premier received like petitions from the Grain Growers' Association of the Province of Saskatchewan, he promised that the tariff should be raised from time to time, and said that if he had his own way he should have free trade as it is in England. On the matter of reciprocity with the United States in the agricultural machinery trade, he said, he would consider the opportunity afforded by the American tariff for that exchange if the arrangement provided for the trade in parts as well as in entire machines.

C. A. C. J.

Greatest Pig Iron Production for Six Months

The statistics just published by the American Iron and Steel Association, representing returns from all the manufacturers of pig iron in the United States, show that the production in the first half of 1910 was 15,012,392 gross tons, against 14,773,125 tons in the last half of 1909 and 11,022,346 tons in the first half of 1909. The following table gives the half-yearly production since 1907 in gross tons:

	1907.	1908.	1909.	1910.
First half	13,478,044	6,918,004	11,022,346	15,012,392
Second half	12,303,317	9,018,014	14,773,125	.....
Total	25,781,361	15,936,018	25,795,471	.....

The increase in production in the first half of 1910 as compared with the second half of 1909 was 239,267 tons, and as compared with the first half of 1909 it was 3,990,046 tons. In the first half of 1910 we exceeded by 1,223,150 tons the production of the whole year 1900, when 13,789,242 tons was made.

The production of Bessemer and low phosphorus pig iron in the first half of 1910 was 6,323,883 tons, against 6,084,888 tons in the last half of 1909 and 4,472,482 tons in the first half. The production in the first half of 1910 includes 118,466 tons of low phosphorus pig iron, against 91,620 tons in the last half of 1909 and 120,995 tons in the first half of that year. The production of basic pig iron in the first half of 1910, not including charcoal of basic quality, was 4,953,810 tons, against 4,952,644 tons in the last half of 1909, an increase of 1166 tons, and 3,297,581 tons in the first half.

The production of charcoal pig iron in the first half of 1910 was 219,653 tons, against 204,614 tons in the last half of 1909 and 171,389 tons in the first half. These figures include a few tons made with charcoal and electricity.

The production of bituminous coal and coke pig iron in the first six months of 1910 amounted to 14,416,000 tons, as compared with 14,138,582 tons in the last half of 1909; the production of anthracite and coke mixed in the first half of 1910 was 371,957 tons, as compared with 422,138 tons in the last half of 1909; of anthracite alone the production was 4782 tons, as compared with 7791 tons in the last half of 1909.

The production of spiegeleisen and ferromanganese in the first half of 1910 was 129,978 tons, against 133,465 tons in the last half of 1909 and 91,575 tons in the first half. The production of spiegeleisen alone in the first half of 1910 was 84,602 tons, and of ferromanganese alone the production was 45,376 tons.

The whole number of furnaces in blast on June 30, 1910, was 293, against 338 on December 31, 1909, and 258 on June 30, 1909. The number of furnaces idle, including furnaces being rebuilt, on June 30, 1910, was 180, against 131 on December 31, 1909, and 205 on June 30, 1909. In the first six months of 1910 the number of furnaces actually in blast during a part or the whole of the period was 374.

Detailed pig iron statistics for the first six months of 1910 are given in the tables on the following page.

Proposed Freight Advances Suspended

Both the Eastern and Western railroads have notified the Interstate Commerce Commission that they have voluntarily suspended their proposed increased freight rates until November 1. This action on the part of the railroads follows the announcement by the commission that it had decided to suspend all important increases pending an investigation into their reasonableness. The decision of the railroads, however, relieves the commission of making the suspensions by piece-meal. The schedules of increases were

PRODUCTION OF PIG IRON IN THE UNITED STATES IN THE FIRST SIX MONTHS OF 1910.

Statistics collected from the Manufacturers by The American Iron and Steel Association, all in Gross Tons.

Production in the First Half of 1909, 11,022,346 Gross Tons; Second Half of 1909, 14,773,125 Tons; First Half of 1910, 15,012,392 Tons.

Total Production of All Kinds of Pig Iron.

TOTAL PRODUCTION OF PIG IRON BY STATES.

States.	Blast Furnaces. In blast Dec. 31, 1909.	Blast Furnaces. June 30, 1910. In.	Out.	Total.	Production—Gross tons. (Includes spiegeleisen, ferro-manganese, ferro-silicon, ferro-phosphorus, etc.) First half of 1909.	Second half of 1909.	First half of 1910.
Massachusetts	2	1	1	2	9,685	8,703	7,505
Connecticut	2	2	1	3			
New York	17	18	10	28	688,828	1,044,847	1,017,951
New Jersey	5	3	6	9	118,219	176,255	155,087
Pennsylvania	134	116	50	166	4,755,079	6,163,745	6,099,342
Maryland	4	4	1	5	115,260	171,596	170,708
Virginia	13	11	15	26	183,019	208,115	244,275
Georgia	0	0	4	4	10,101	15,971	6,725
Texas	0	0	4	4			
Alabama	29	24	27	51	800,708	962,909	1,012,545
West Virginia	3	1	3	4	63,200	165,082	137,439
Kentucky	2	3	5	8	49,580	36,791	46,520
Tennessee	13	12	8	20	152,628	181,217	235,969
Ohio	61	50	25	75	2,242,987	3,308,558	3,210,562
Illinois	23	20	6	26	1,057,874	1,409,282	1,552,160
Indiana	7	6	3	9	420,191	544,098	716,832
Michigan	11	11	4	15			
Wisconsin	6	4	3	7	171,277	176,900	170,814
Minnesota	1	1	0	1			
Missouri	2	2	0	2			
Colorado	3	4	2	6			
Oregon	0	0	1	1	183,710	199,056	227,958
Washington	0	0	1	1			
California	0	0	0	0			
Total	338	293	180	473	11,022,346	14,773,125	15,012,392

PRODUCTION OF BITUMINOUS COAL AND COKE PIG IRON.

New York	17	18	3	21	688,178	1,043,256	1,017,901
New Jersey	5	3	4	7	93,091	163,755	152,975
Pennsylvania	106	98	25	123	4,510,843	5,744,487	5,722,392
Maryland	3	4	0	4	114,860	169,496	170,108
Virginia	12	11	11	22	187,862	216,863	247,731
Georgia	0	0	1	1			
Texas	0	0	3	3			
Alabama	27	23	23	46	784,712	945,264	997,206
West Virginia	3	1	3	4	63,200	165,082	137,439
Kentucky	1	2	5	7	48,928	35,088	45,963
Tennessee	12	11	7	18	151,595	179,314	234,393
Ohio	61	49	21	70	2,242,987	3,308,558	3,210,542
Illinois	23	20	6	26	1,057,874	1,409,282	1,552,160
Indiana	7	6	3	9	*440,358	*531,479	673,580
Michigan	2	2	1	3			
Wisconsin	5	3	3	6			
Minnesota	1	1	0	1			
Missouri	1	1	0	1			
Colorado	3	4	2	6	197,967	226,658	253,610
Washington	0	0	1	1			
Total	289	257	122	379	*10,582,455	*14,138,582	14,416,000

* Includes a small quantity of iron made experimentally with manufactured gas.

ANTHRACITE AND MIXED ANTHRACITE AND COKE PIG IRON.

New York	0	0	5	5	268,502	429,929	376,739
New Jersey	0	0	2	2			
Pennsylvania	25	14	23	37			
Total	25	14	30	44	268,502	429,929	376,739

PRODUCTION OF CHARCOAL PIG IRON BY STATES.

Massachusetts	2	1	1	2	*10,335	*10,294	*7,555
Connecticut	2	2	1	3			
New York	0	0	2	2			
Pennsylvania	3	4	2	6	862	1,829	2,323
Maryland	1	0	1	1	1,557	4,031	965
Virginia	1	0	4	4			
Alabama	2	1	4	5	15,996	17,645	15,339
Georgia	0	0	3	3	5,786	8,898	5,037
Texas	0	0	1	1			
Kentucky	1	1	0	1			
Tennessee	1	1	1	2			
Ohio	0	1	4	5	0	0	20
Michigan	9	9	3	12	103,733	128,000	155,740
Wisconsin	1	1	0	1			
Missouri	1	1	0	1	*33,120	*33,917	*32,674
Oregon	0	0	1	1			
California	0	0	0	0			
Total	24	22	28	50	*171,389	*204,614	*219,653

* Includes a small quantity of pig iron made with charcoal and electricity.

TOTAL PRODUCTION OF PIG IRON ACCORDING TO FUEL USED.

Bituminous	289	257	122	379	10,582,455	14,138,582	14,416,000
Anth. & anth. & coke	25	14	30	44	268,502	429,929	376,739
Charcoal	24	22	28	50	171,389	204,614	219,653
Total	338	293	180	473	11,022,346	14,773,125	15,012,392

Miscellaneous Pig Iron Statistics.

PRODUCTION OF PIG IRON IN PENNSYLVANIA AND OHIO

	Districts.	Blast Furnaces. In blast Dec. 31, 1909.	Blast Furnaces. June 30, 1910. In.	Out.	Total.	Production—Gross tons. (Includes spiegeleisen, ferro-manganese, ferro-silicon, ferro-phosphorus, etc.) First half of 1909.	Second half of 1909.	First half of 1910.
Pennsylvania.	Lehigh Valley	17	16	10	26	310,058	380,430	369,529
	Schuylkill "	12	10	7	17	363,562	358,967	404,383
	L. Susq. "	14	10	9	19	251,939	358,032	358,511
	Juniata "	5	3	6	9	69,387	61,628	93,557
	Allegheny Co.	46	38	9	47	2,370,043	3,127,329	2,895,729
	Shenan. Valley	20	20	3	23	632,825	904,803	1,041,381
	Miscel. bitum.	17	15	4	19	756,403	880,727	933,729
	Charcoal	3	4	2	6	862	1,829	2,323
Ohio.	Mahoning Val.	20	20	2	22	977,596	1,301,054	1,345,926
	Hocking "	0	0	1	1	605,357	959,846	866,805
	Lake Counties	14	10	6	16			
	Miscel. bitum.	15	10	6	16	420,223	833,937	722,360
	H. R. bitum.	12	9	6	15	239,811	213,721	275,451
	H. R. charcoal	0	1	4	5	0	0	20

PRODUCTION OF BESSEMER AND LOW-PHOSPHORUS PIG IRON.

New York	285,882	342,544	464,263
Pennsylvania	1,640,469	2,211,137	2,466,797
Maryland	114,860	169,496	170,108
Virginia, West Va., Kentucky, and Tenn.	202,677	191,160	184,281
Ohio	1,507,204	2,120,842	1,942,374
Illinois	799,748	1,004,654	1,035,681
Michigan, Wisconsin, Minn., Col., and Cal.	21,642	45,055	60,379
Total	4,472,482	6,084,888	6,323,883

PRODUCTION OF BESSEMER AND LOW-PHOSPHORUS PIG IRON IN PENNSYLVANIA AND OHIO BY DISTRICTS.

Pennsylvania.	Lehigh Valley	70,839	71,708	88,370
	Schuylkill Valley			
	Lower Susquehanna Valley	59,924	59,950	59,374
	Allegheny County	873,410	1,269,599	1,322,242
	Shenango Valley	636,296	809,880	996,811
	Miscellaneous bituminous			
Ohio.	Mahoning Valley	806,996	875,843	873,483
	Lake Counties	410,194	641,135	505,261
	Hanging Rock bituminous	290,014	603,864	563,630
	Miscellaneous bituminous			

PRODUCTION OF BASIC PIG IRON, NOT INCLUDING CHARCOAL IRON

New York and New Jersey	76,411	390,508	274,032
Pennsylvania—Allegheny County	1,422,169	1,765,518	1,480,013
Other counties	817,880	1,250,678	1,228,391
Virginia and Alabama	181,603	221,300	402,427
Ohio	238,789	607,167	612,331
Indiana, Illinois, Missouri, and Colorado	560,729	717,473	956,616
Total	3,297,581	4,952,644	4,953,810

PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE.

Pennsylvania	69,197	97,904	90,412
Illinois	22,378	35,561	39,566
Total	91,575	133,465	129,978

PRODUCTION OF ALL KINDS OF PIG IRON FROM 1905 TO 1909.

States—Gross tons.	Production—(Includes spiegeleisen, ferro-manganese, etc.) 1905.	1906.	1907.	1908.	1909.
Massachusetts	15,987	20,230	19,119	13,794	18,388
Connecticut					
New York	1,198,068	1,552,659	1,659,752	1,019,495	1,733,675
New Jersey	311,039	379,390	373,189	225,372	294,474
Pennsylvania	10,579,127	11,247,869	11,348,549	6,987,191	10,918,824
Maryland	332,096	386,709	411,833	183,502	286,856
Virginia	510,210	483,525	478,771	320,458	391,134
Georgia	38,009	92,599	55,825	24,345	26,072
Texas					
Alabama	1,004,062	1,674,848	1,686,674	1,397,014	1,763,617
West Virginia	298,179	304,534	291,066	65,551	228,282
Kentucky	63,735	98,127	127,946	45,096	86,371
Tennessee	372,692	426,874	393,106	290,826	333,845
Ohio	4,586,110	5,327,133	5,250,687	2,861,325	5,551,545
Illinois	2,034,483	2,156,866	2,457,768	1,691,944	2,467,156
Indiana	288,704	369,456	436,507	348,096	964,289
Michigan					
Wisconsin	351,415	373,323	322,083	148,938	348,177
Minnesota					
Missouri					
Colorado	407,774	413,040	468,486	313,071	382,766
Washington					
California					
Total	22,992,380	25,307,191	25,781,361	15,936,018	25,795,471

to have become effective on August 1. Before that date the commission would have filed formal orders holding them up for 120 days.

The commission expects to be able to clear up this question of increased freight by October 1, but the railroads in their voluntary offer of suspension give the commission a month's leaway, or until November 1. In the event of the commission not having reached a decision by that date it will, of course, have the power to suspend the rates for six months longer. The advantage of the action taken by the railroads, which was done by the Eastern lines July 20 and the Western lines July 22, lies chiefly in the fact that it will allow the Interstate Commerce Commission to begin to work at once on the general investigation into advances.

The blast furnace of the Perry Iron Company, Erie, Pa., was blown out last week.

United States Steel Corporation's Earnings.

The statement of the United States Steel Corporation's earnings for the quarter ending June 30, 1910, makes the following showing, as compared with the corresponding period of 1909:

	1910.	1909.
April	$13,414,956	$8,163,244
May	13,229,289	9,661,228
June	13,526,715	11,516,019
Total after deducting all expenses incident to operations, including those for ordinary repairs and maintenance of plants, employees' bonus funds and interest on bonds and fixed charges of the subsidiary companies	$40,170,960	$29,340,491
Less charges and appropriations for the following purposes:		
Sinking funds on bonds of subsidiary companies	$720,256	$506,096
Depreciation and reserve funds	5,569,949	5,511,000
	$6,290,205	$6,017,096
Net earnings	$33,880,755	$23,323,395
Deduct interest for the quarter on U. S. Steel Corporation bonds outstanding	$5,849,363	$5,911,862
Sinking fund for the quarter on U. S. Steel Corporation bonds:		
Installments	1,012,500	1,012,500
Interest on bonds in sinking funds	450,099	387,601
	$7,311,962	$7,311,963
Balance	$26,568,793	$16,011,432
Dividends for the quarter:		
Preferred	$6,304,919	$6,304,919
Common	6,353,781	3,812,269
Surplus for the quarter	$13,910,093	$10,117,188
Less appropriated on account of expenditures for property, new plants and construction	7,500,000	.....
Balance of surplus for the quarter	$6,410,093	$5,894,244
	Tons.	Tons.
Unfilled orders on hand, June 30	4,257,794	4,057,939

The earnings for the quarter ending March 31, 1910, were $37,616,876. For the half year the total earnings were, therefore, $77,787,836, against $52,261,759 in the first half of 1909.

As the unfilled orders March 31 were 5,402,514 tons, there was a shrinkage in this respect of 1,144,720 tons up to June 30.

The directors adopted the following resolution at their meeting Tuesday afternoon: "That the officers hereafter make public on the 10th day of each month the aggregate tonnage of unfilled orders on hand at the close of the previous month."

Receivership for the Dunbar Furnace Company

On application of L. & R. Wister & Co., Philadelphia, Walter C. Harris of that city was made receiver of the Dunbar Furnace Company, July 22. Mr. Harris is president and L. & R. Wister & Co. are general manager and general sales agents of the furnace company, whose two blast furnaces and coking plant are located at Dunbar, Fayette County, Pa. The authorized capital stock of the company is $1,000,000, of which $886,700 is outstanding. There is an issue of $500,000 of second mortgage bonds, due in 1913, of which a sufficient amount has been reserved to retire $119,000 of prior liens. The receiver will continue the operation of the company's plants. A Philadelphia dispatch says that it is not intended under the receivership to liquidate the concern completely. It is added that the company had a stock of about 42,000 tons of pig iron, or 40 per cent. of a year's output, and that all of it was sold, but, owing to the condition of the iron trade, customers could not be compelled to complete their contracts. The company has assets of about $3,000,000, against liabilities of about $1,400,000.

Sanitary Enameled Ware Manufacturers Sued

The Department of Justice filed in the circuit court at Baltimore, July 22, a suit under the Sherman antitrust law against an alleged unlawful combination of 16 manufacturers of sanitary enameled ware. The defendant concerns are scattered over nine States and control, so the Department of Justice alleges, 85 per cent. of the total output of sanitary enameled ware in this country.

The suit differs from others that have been instituted under the Sherman act, in that the defendants have attempted, so the Department charges, to conceal their unlawful purposes under the guise of a licensing arrangement under a patent. The concerns involved assigned a patent to a person selected by them and then all took licenses to manufacture and sell under the patent, and by these license agreements, fixed prices and all the terms of the combination. The Department of Justice charges that they attempted to use the patent laws as a screen while violating the Sherman antitrust law.

The charges are that there is a general understanding among the defendants as to discounts to be allowed to jobbers; that they compel all jobbers to sign contracts stipulating the prices at which the goods are to be retailed and making other binding combinations; that they refuse to sell their goods to any jobber who declines to sign one of these uniform contracts; that they have divided up the country into trade zones among themselves; that they have by agreement limited their respective outputs, and that they impose a severe penalty upon any member that departs from the rules of the combination.

The alleged trust began operations openly on June 1. The most important products of the companies are bathtubs, washbowls, lavatories and sinks. The Department asks for an injunction restraining the defendants from continuing the combination. The suit in equity is directed also against the officers of the company. The 16 companies involved are named, as follows:

Barnes Mfg. Company, Mansfield, Ohio.
Cahill Iron Works, Chattanooga, Tenn.
Colwell Lead Company, New York City.
Day-Ward Company, Warren, Ohio.
Humphreys Mfg. Company, Mansfield, Ohio.
Kerner Mfg. Company, Pittsburgh, Pa.
J. L. Mott Iron Works, New York.
McCrum-Howell Company, New York.
MacVay & Walker, Braddock, Pa.
National Sanitary Mfg. Company, Salem, Ohio.
Standard Sanitary Mfg. Company, Pittsburgh, Pa.
United Sanitary Mfg. Company, Noblesville, Ind.
United States Sanitary Mfg. Company, Pittsburgh, Pa.
L. Wolff Mfg. Company, Chicago, Ill.
A. Wieskittel & Son Company, Baltimore, Md.
Wheeling Enameled Iron Company, Wheeling, W. Va.

A press dispatch from Louisville, Ky., quotes Theodore Ahrens, president of the Standard Sanitary Mfg. Company, as follows:

This suit grows out of certain patents we have taken up, resulting in a rearrangement of prices. It is true, as stated, that we control 85 per cent. of the output of sanitary enameled ironware, but it is not true that we have advanced prices nor have we compelled jobbers to sign ironbound contracts as a condition to obtaining our goods. We have not refused to sell to any one not signing such contract. Before we took up these patents we laid the matter before the Department of Justice and were assured that our plans were perfectly legal.

One of the recent orders received by the Allis-Chalmers Company, Milwaukee, was from the Finnish American Copper Company of Helingfors, Finland. This order was for a complete "fine" concentrating plant for the extraction of copper, lead and zinc. There was also included the power equipment, made up of boilers, engines, generators and everything necessary for the entire plant.

The Iron and Metal Markets

A Comparison of Prices

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	July27, 1910.	July20, 1910.	June29, 1910.	July28, 1909.
PIG IRON, Per Gross Ton:				
Foundry No. 2, standard, Philadelphia	$16.25	$16.25	$16.25	$16.75
Foundry No. 2, Southern, Cincinnati	14.75	14.75	14.75	15.75
Foundry No. 2, local, Chicago	*16.50*	16.50	16.75	17.00
Basic, delivered, eastern Pa.	*15.50*	15.75	15.75	16.50
Basic, Valley furnace	14.50	14.50	14.50	15.25
Bessemer, Pittsburgh	16.40	16.40	16.40	16.90
Gray forge, Pittsburgh	*14.40*	14.40	14.90	14.90
Lake Superior charcoal, Chicago	18.50	18.50	18.50	19.50
BILLETS, &c., Per Gross Ton:				
Bessemer billets, Pittsburgh	*24.50*	25.00	25.00	24.00
Forging billets, Pittsburgh	*30.00*	30.00	31.00	28.00
Open hearth billets, Philadelphia	28.50	28.50	28.50	25.50
Wire rods, Pittsburgh	*29.00*	29.00	31.00	31.00
Steel rails, heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel rails, melting, Chicago	*13.00*	13.00	13.50	14.75
Steel rails, melting, Philadelphia	*14.00*	14.00	14.25	16.00
Iron rails, Chicago	*16.50*	16.75	17.00	17.00
Iron rails, Philadelphia	*18.00*	18.50	19.50	19.50
Car wheels, Chicago	*14.75*	14.75	15.50	16.00
Car wheels, Philadelphia	*14.00*	14.00	14.50	15.00
Heavy steel scrap, Pittsburgh	*14.00*	14.50	15.00	15.75
Heavy steel scrap, Chicago	*12.25*	12.25	12.75	14.25
Heavy steel scrap, Philadelphia	*14.00*	14.00	14.25	16.00
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined iron bars, Philadelphia	*1.42½*	1.45	1.47½	1.45
Common iron bars, Chicago	*1.40*	1.40	1.45	1.35
Common iron bars, Pittsburgh	1.50	1.50	1.50	1.45
Steel bars, tidewater, New York	1.61	1.61	1.61	1.46
Steel bars, Pittsburgh	1.45	1.45	1.45	1.30
Tank plates, tidewater, New York	*1.56*	1.56	1.61	1.51
Tank plates, Pittsburgh	*1.40*	1.40	1.45	1.35
Beams, tidewater, New York	*1.56*	1.56	1.61	1.51
Beams, Pittsburgh	*1.40*	1.40	1.45	1.35
Angles, tidewater, New York	*1.56*	1.56	1.61	1.51
Angles, Pittsburgh	*1.40*	1.40	1.45	1.35
Skelp, grooved steel, Pittsburgh	1.50	1.50	1.50	1.35
Skelp, sheared steel, Pittsburgh	1.60	1.60	1.60	1.45
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	*2.25*	2.30	2.40	2.20
Wire nails, Pittsburgh*	*1.70*	1.70	1.80	1.80
Cut nails, Pittsburgh	*1.70*	1.70	1.75	1.75
Barb wire, galv., Pittsburgh*	*2.00*	2.00	2.10	2.10
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	*12.62½*	12.62½	12.75	13.50
Electrolytic copper, New York	**12.50**	12.25	12.37½	13.00
Spelter, New York	5.20	5.20	5.20	5.35
Spelter, St. Louis	5.05	5.05	5.05	5.27½
Lead, New York	**4.40**	4.40	4.37½	4.35
Lead, St. Louis	**4.25**	4.25	4.22½	4.20
Tin, New York	**33.25**	33.25	33.00	29.30
Antimony, Hallett, New York	*8.00*	8.00	8.12½	7.50
Nickel, New York	45.00	45.00	45.00	45.00
Tin plate, 100 lb., New York	$3.84	$3.84	$3.84	$3.64

* These prices are for largest lots to jobbers.

Prices of Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural shapes and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Shapes.—I-beams and channels, 3 to 15 in., inclusive, 1.40c. to 1.45c., net; I-beams over 15 in., 1.55c., net; H-beams over 8 in., 1.65c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.50c., net; angles, over 6 in., 1.55c., net; angles, 3 x 3 in., and up, less than ¼ in., 1.65c., base, half extras, steel bar card; tees, 3 in. and up, 1.55c., net; zees, 3 in. and up, 1.50c., net; angles, channels and tees, under 3 in., 1.40c., base, plus 10c., half extras, steel bar card; deck beams and bulb angles, 1.75c., net; hand rail tees, 2.75c., net; checkered and corrugated plates, 2.75c., net.

Plates.—Tank plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.40c. to 1.45c., base. Following are stipulations prescribed by manufacturers, with extras to be added to base price (per pound) of plates:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼-in. thick and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. take the price of 3-16-in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

Gauges under ¼-in. to and including 3-16-in. on thinnest edge	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
Gauges under No. 9 to and including No. 10	.30
Gauges under No. 10 to and including No. 12	.40
Sketches (including all straight taper plates), 3 ft. and over in length	.10
Complete circles, 3 ft. diameter and over	.20
Boiler and flange steel	.10
"A. B. M. A." and ordinary firebox steel	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Widths over 100 in. up to 110 in., inclusive	.05
Widths over 110 in. up to 115 in., inclusive	.10
Widths over 115 in. up to 120 in., inclusive	.15
Widths over 120 in. up to 125 in., inclusive	.25
Widths over 125 in. up to 130 in., inclusive	.50
Widths over 130 in	1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive	.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive	.50
Cutting to lengths or diameters under 1 ft.	1.55

No charge for cutting rectangular plates to lengths 3 ft. and over.

TERMS.—Net cash 30 days.

Sheets.—Makers' prices for mill shipments on sheets in carload and larger lots, on which jobbers charge the usual advances for small lots from store, are as follows: Black annealed sheets, Nos. 3 to 8, 1.70c.; Nos. 9 and 10, 1.75c.; Nos. 11 and 12, 1.80c.; Nos. 13 and 14, 1.85c.; Nos. 15 and 16, 1.95c. Box annealed sheets, Nos. 17 and 21, 2.05c.; Nos. 22 to 24, 2.10c.; Nos. 25 and 26, 2.20c.; No. 27, 2.20c.; No. 28, 2.25c.; No. 29, 2.30c.; No. 30, 2.40c. Galvanized sheets, Nos. 13 and 14, 2.50c.; Nos. 15 and 16, 2.55c.; Nos. 17 to 21, 2.70c.; Nos. 22 to 24, 2.85c.; Nos. 25 and 26, 3.05c.; No. 27, 3.15c.; No. 28, 3.35c.; No. 29, 3.50c.; No. 30, 3.70c. Painted roofing sheets, No. 28, $1.65 per square. Galvanized roofing sheets, No. 28, $3 per square, for 2½-in. corrugations.

Wrought Pipe.—The following are the discounts on the Pittsburgh basing card on carloads of wrought pipe now in effect:

	Steel. Black.	Steel. Galv.	Iron. Black.	Iron. Galv.
⅛ and ¼ in.	70	54	66	..
⅜ in.	71	57	67	53
½ in.	74	62	70	58
¾ to 6 in.	78	68	74	64
7 to 12 in.	72	57	68	53
Plugged and Reamed.				
1 to 4 in.	76	66	72	62
Extra Strong, Plain Ends.				
⅛ to ⅜ in.	63	51	59	47
½ to 4 in.	70	58	66	54
4½ to 8 in.	66	54	62	50
9, 10, 11 and 12 in.	54	42	...	..
Double Extra Strong, Plain Ends.				
½ to 8 in.	59	48	55	44

The above steel pipe discounts are for "card weight," subject to the usual variation of 5 per cent.

Boiler Tubes.—Discounts on lap welded steel and charcoal iron boiler tubes to jobbers in carloads are as follows:

	Steel.	Iron.
1 to 1¼ in.	49	43
1¾ to 2¼ in.	61	43
2½ in.	63	48
2¾ to 3 in.	69	55
6 to 13 in.	61	43

2½ in. and smaller, over 18 ft., 10 per cent. net extra.

2¾ in. and larger, over 22 ft., 10 per cent. net extra.

Less than carloads to destinations east of the Mississippi River will be sold at delivered discount for carloads lowered by two points, for lengths 22 ft. and under; longer lengths, f.o.b. Pittsburgh.

Wire Rods.—Bessemer, open hearth and chain rods, $29.

Steel Rivets.—Structural rivets, ¾-in. and larger, 2.15c., base; cone head boiler rivets, ¾-in. and larger, 2.25c., base; ⅝-in. and 11-16-in. take an advance of 15c., and ½-in. and 9-16-in. take an advance of 50c.; in lengths shorter than 1-in. also take an advance of 50c. Terms are 30 days, net cash, f.o.b. mill.

THE IRON AND METAL MARKETS

Pittsburgh

PARK BUILDING, July 27, 1910.—(*By Telegraph.*)

Pig Iron.—The week has been extremely quiet with not enough pig iron being sold to establish prices. Some of the furnaces are refusing to take business for the remainder of this year at present low prices, believing the market will improve later on. Inquiries are out for 1500 to 2000 tons of basic for August and September delivery, and indications are that this business, if placed, will go below $14.50, Valley furnace. No sales of Bessemer have been made. We quote standard Bessemer iron at $15.50; basic, $14.50; malleable Bessemer, $14.75; No. 2 foundry, $14.25, and gray forge, $13.50, all at Valley furnace, the freight rate for delivery in the Pittsburgh district being 90 cents a ton.

Steel.—Some inquiry is in the market for Bessemer 4 x 4 in. billets and several small lots have been sold at $24.50, Pittsburgh, for prompt delivery. We quote Bessemer billets, 4 x 4 in., $24.50 to $25; Bessemer sheet bars, $26 to $26.50; 4 x 4 in. open hearth billets, $26 to $26.50; open hearth small billets, $27 to $27.50; open hearth sheet and tin bars, $27 to $27.50, and forging billets, $30 to $31, all f.o.b. Pittsburgh, Wheeling or Youngstown district, with freight to point of delivery added.

Muck Bar.—Sales of about 500 tons of standard grade muck bar, made from all pig iron, are reported on the basis of about $29.50, Pittsburgh. This high price was obtained largely because of the shutdown of puddling plants in the Central West, awaiting settlement of the wage scale.

(*By Mail.*)

The present unsatisfactory conditions in the iron trade and the rather uncertain outlook for the near future are due largely to two causes, the first being that the railroads are buying very little material of any kind, and the second, there is a large overproduction of all material. The enormous additions to capacity that have been made by the leading steel companies in the past two years are being felt, and the country does not seem to be able at present to absorb this large increase in output. The railroads for years have been paying dividends to their stockholders with money that ought to have been used in renewals and building new lines, with the result that securities have been issued time after time by the railroads, until the point is about reached where the railroads are having trouble in marketing their securities on favorable terms. How soon this condition will change is a problem for the future, but no permanent betterment in the iron trade can be expected until the railroads are more liberal buyers. It seems certain, too, that further restriction in output on nearly all kinds of iron and steel will have to be made, so that demand can catch up to supply. The week under review has been quiet, with the tendency in prices still downward. Hardly enough pig iron is being sold to establish a market, and the same is true of steel. In finished lines, tin plate, structural material and large pipe are active, but the balance of the finished list is dull. There is very little movement in scrap from dealers to consumers, but there is quite an active inquiry for foundry coke for delivery over the next year from July, quite a number of consumers not having yet covered their requirements. Prices are reported to be a shade firmer.

Ferromanganese.—There is practically no new inquiry, but an occasional resale is made by consumers who for some reason do not desire to take in Ferro for which they have contracted. A carload sale of about 30 tons was made here the other day by a consumer for prompt shipment on the basis of about $39.50 Baltimore. We quote 80 per cent. foreign Ferro for forward delivery at $39 to $39.50 Baltimore, carrying a freight rate of $1.90 a ton for delivery in the Pittsburgh district.

Ferrosilicon.—The market is very quiet and there have been no sales in this district for some little time. We quote 50 per cent. ferrosilicon at $57.50 to $58, delivered, Pittsburgh. We quote 10 per cent. at $23; 11 per cent., $24, and 12 per cent., $25, all at Ashland furnace, to which $1.90 a ton should be added for delivery in the Pittsburgh district.

Rods.—It is stated that since the reduction of $2 a ton in rods, which went into effect July 13, some contracts for forward delivery have been placed, while specifications on old contracts are coming out a little better. We quote Bessemer, open hearth and chain rods at $29, Pittsburgh, but on desirable tonnage this price might be shaded.

Skelp.—The settlement between the Republic Iron & Steel Company and the Amalgamated Association of the puddling and finishing scales with the probability that an early settlement will be made with the Western Bar Iron Association has allowed a number of mills rolling iron skelp to be started up and the scarcity of grooved and sheared iron plates will probably soon disappear. New inquiry for skelp is light except for the wide sizes, which has been quite active for some time. For ordinary widths and gauges we quote grooved steel skelp at 1.50c. to 1.55c.; sheared steel skelp, 1.60c. to 1.65c.; grooved iron skelp, 1.80c., and sheared iron skelp 1.90c., all f.o.b. mill, Pittsburgh.

Steel Rails.—New demand for light rails continues very active from the mining and lumber interests, and in the past week the Carnegie Steel Company has booked quite a heavy tonnage. The Mexican Central Railroad is reported to be in the market for 20,000 tons of standard sections, and there is a possibility that business may come to a local mill. The Carnegie Steel Company is pretty well filled up on light rails for the next several months and is operating its Edgar Thomson mills, on which light rails are rolled to practically full capacity. We quote steel axles at 1.75c. to 1.80c., and splice bars, 1.50c., at mill, Pittsburgh. Light rail prices are as follows: 8 to 10 lb., $32; 12 to 14 lb., $29; 16, 20 and 25 lb., $28; 30 and 35 lb., $27.75, and 40 to 45 lb., $27, Pittsburgh. These prices are for 250-ton lots and over, and for small lots premiums of 50c. per ton and more are being paid. We quote standard sections at $28, at mill.

Structural Material.—It is hardly probable that bids on the Quebec bridge, which will take about 65,000 tons, half or more of which will be nickel steel, will be ready by September 1, and it is likely an extension of time will be given. There is strong probability that a good part of the material for this structure will come from English or German mills. Another large job in the market is the New York Central Depot in New York City, bids on which will go in in a short time. The Jones & Laughlin Steel Company has taken about 2000 tons for new machine shops for the Pennsylvania General Electric Company at Erie, Pa., and the national Construction Company has taken a number of small bridges for the New York State Barge Canal, about 1200 tons, this material to be rolled by the Carnegie Steel Company. The Oregon Railway & Navigation Company intends to build a bridge over the Willamette River at Portland, Ore., which will take about 6500 to 7000 tons, but bids on this structure have not yet been asked. Local fabricating concerns are pretty well filled up and are passing by some inquiries that otherwise would be of interest. We quote beams and channels up to 15-in. at 1.40c. to 1.45c., f.o.b. Pittsburgh.

Plates.—The biggest job in prospect in the plate trade is the plates for the water line now building by the city of Los Angeles, Cal. This line is about 240 miles in length and will be constructed partly of concrete and the balance steel pipe. The work will require upward of 20,000 tons of plates, and bids on these plates will likely be asked in a short time. No new car orders have been placed in the past week and there is very little new inquiry from the railroads. It is stated that the Baltimore & Ohio will buy some more cars, but inquiries have not yet gone out. The plate mills have a good deal of work on their books that will carry them pretty well up to October, but beyond that there is very little. We quote ¼-in. and heavier plates at 1.40c. to 1.45c., Pittsburgh, but are advised that on narrow sizes some of the smaller plate mills are naming 1.35c. in some cases.

Sheets.—As yet no change has been made in official prices of sheets by the leading mills, these being 2.40c. for No. 28 box annealed one-pass black sheets and 3.50c. for No. 28 galvanized. These prices, however, do not represent the actual market, No. 28 black being pretty freely quoted as low as 2.25c., and in some cases 2.20c. is being done. No. 28 galvanized sheets are offered at 3.30c., and in exceptional cases 3.25c. is being named. In fact, actual prices ruling on sheets are from $3 to $4 a ton below the official figures on black sheets and $4 to $5 a ton on galvanized sheets. The mills will not take contracts at these prices as a rule, but will only enter current orders. New demand for black and galvanized sheets is only fair, but on blue annealed and electrical sheets is quite active, regular prices on the latter being well maintained.

Tin Plate.—This is the dull season of the year in the tin plate trade as far as new demand is concerned and there is not much new buying, but consumers of tin plate are more concerned just now in getting deliveries from the mills on their contracts. Reports on the corn and tomato crops are very reassuring and the tin plate mills look forward to a very active condition in the trade for the balance of this year. The American Sheet & Tin Plate Company is turning out the largest product of tin plate in its history, and the leading independent mills are also making records for output of tin plate. All labor troubles at the plant of the Standard Tin Plate Company, Canonsburg, Pa., have been amicably settled and this plant is running full. The

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market is firm and we quote on the basis of $3.60 for 100 lb. cokes per base box, f.o.b. Pittsburgh.

Bars.—As noted last week the Republic Iron & Steel Company has come to an agreement with the Western Bar Iron Association on the puddling and finishing scales, and the bar iron mills of the Republic Company that were closed down are being started up. A settlement with the Western Bar Iron Association on the same basis that was reached with the Republic Company is likely to be made to-day or to-morrow without a conference. The steel bar trade continues active, specifications on recent contracts coming in freely and the leading steel bar mills are still behind in shipments. New demand for iron bars is not so active, but is reported a little better since the adjustment of the wage scales. We continue to quote steel bars at 1.45c. and iron bars about 1.50c., f.o.b. Pittsburgh.

Spelter.—The market continues quiet, new demand being light and mostly for small lots. Prices are only fairly strong. We quote prime grades of Western spelter at 5c. to 5.05c., East St. Louis, equal to 5.12½c. and 5.17½c., Pittsburgh.

Hoops and Bands.—Consumers are specifying in a fairly liberal way on contracts made since July 1 and on old contracts which were extended into third quarter. New demand is only fair, and buyers are inclined to limit their purchases to small lots to cover current needs. We quote steel hoops for forward delivery at 1.50c. to 1.55c. and steel bands at 1.45c. to 1.50c., f.o.b. Pittsburgh, extras as per the steel bar card applying on the latter.

Spikes.—No new orders of any moment for railroad spikes have been placed with local makers for some time, new demand being confined to small lots for repair work. We note that small railroad and boat spikes are in fairly active demand, and prices are ruling firm. We quote standard sizes of railroad spikes, 4½ x 9-16 in. and larger, at 1.50c. to 1.55c., for Western shipment, and 1.55c. to 1.60c., for local trade. We quote small railroad and boat spikes at 1.60c. to 1.65c., base, these prices being for carload and larger lots.

Rivets.—New demand is light, and specifications on contracts are not coming in at a very satisfactory rate. Official prices on structural rivets are 2.15c. and on boiler rivets 2.25c., f.o.b. Pittsburgh, but on desirable orders these prices are shaded.

Shafting.—New demand for shafting, particularly from automobile builders, continues fairly active, but is not as heavy as some time ago. The shafting makers are better caught up on deliveries now than they have been at any time this year and have a fair amount of work ahead on their books. Regular discounts on shafting are 55 per cent. off in carload and larger lots and 50 per cent. off in small lots, delivered in base territory. For desirable specifications the carload price of 55 per cent. off is sometimes shaded to the extent of about 55 and 5 off.

Wire Products.—The reduction of $2 a ton on wire products, which went into effect on July 13, has stimulated new demand to some extent, but not as much as anticipated by the mills and would be the case when the reduction was made. Some contracts for wire nails and wire have been made at the lower figures for shipment within 60 days from date, and specifications on these contracts are now being received by the mills. We quote galvanized barb wire at $2; painted, $1.75; annealed fence wire, $1.50; galvanized, $1.80; wire nails, $1.70, and cut nails, $1.65 to $1.70 in carload and larger lots, all f.o.b. Pittsburgh, freight to destination added.

Merchant Pipe.—Some fairly large inquiries for line pipe are in the market, and two or three large contracts are being worked up, but have not reached the stage where they can be given publicity. The Arkansas Natural Gas Company is inquiring for 10 to 12 miles of 10-in. and about seven miles of 6-in. pipe, and this is likely to be placed this week. A local gas company is in the market for eight to nine miles of 10-in. and another gas concern for 15 to 20 miles of 10 to 12-in. pipe. The Ohio Fuel Supply Company will probably buy in the near future about 15 miles of 10-in. steel pipe and 30 miles of 16-in. steel pipe. On the lap weld sizes of pipe, the mills are busy and are pretty well filled up over balance of this year. On the butt weld sizes the heavy stocks held by the mills and jobbers are reported as moving out a little more freely, but new demand continues light. Official discounts on the larger sizes of iron and steel pipe are being shaded to some extent and on the smaller sizes are reported as being maintained.

Boiler Tubes.—Some fairly large contracts for locomotive tubes have recently been placed with local mills, one of these being the contract for seamless tubes for 500 locomotives of the Mikado type to be built for the Baltimore & Ohio Railroad by the Baldwin Locomotive Works. New demand for merchant tubes is only fair, and official discounts, printed on a previous page, are more or less shaded.

Coke.—We note quite active inquiry for foundry coke for shipment over balance of this year, a number of consumers not yet having covered for their supply. The Westinghouse Air Brake Company is in the market for quite a large tonnage of foundry coke for shipment over the year, and it is probable this business will be closed within a short time. A number of Eastern consumers also have inquiries in this market for both furnace and foundry coke, but their ideas of prices are somewhat below those of the coke makers, and contracts are slow in being closed up. The Jamison Coal & Coke Company, one of the largest producers of high grade foundry coke in the country, reports that its product for some time ahead is sold up, and the concern is practically out of the market for the time being. This concern states that all its contracts for foundry coke are based at $2.50 per ton to consumers. Output of coke is still high, running about 400,000 tons per week in the Upper and Lower Connellsville regions. There seems to be no doubt but that there is an over production of coke and no improvement in prices can be expected until output is materially curtailed. A number of leading producers have blown out a considerable number of ovens in the past week. We quote best grades of furnace coke running under 1 per cent. in sulphur for delivery over last half of this year at $1.80 to $1.85 and best grades of 72-hour foundry coke at $2.15 and up to $2.50 per net ton at oven for same delivery, the higher price being paid for foundry coke with very high reputation for quality. Furnace coke loaded on cars, and which has to be moved, is being offered at $1.60 to $1.65 in net tons at oven.

Iron and Steel Scrap.—About the only transactions that are being made in the scrap market are between dealers, consumers being pretty well covered and out of the market for the time being. The tendency in prices on scrap is still downward, but in some quarters the opinion is that prices have probably reached bottom, or nearly so. While heavy steel scrap has shown a still further decline, it is stated that the supply of this material is not as large as generally supposed, and at $14 it is believed has about reached bottom. Dealers quote about as follows, per gross ton, for delivery at Pittsburgh or elsewhere, as noted:

Heavy steel scrap, Steubenville, Follansbee, Sharon, Monessen and Pittsburgh delivery	$14.00 to $14.25
No. 1 foundry cast	14.00 to 14.25
No. 2 foundry cast	13.00 to 13.25
Bundled sheet scrap, at point of shipment	9.75 to 10.00
Rerolling rails, Newark and Cambridge, Ohio, and Cumberland, Md.	15.75 to 16.00
No. 1 railroad malleable scrap	13.75 to 14.00
Grate bars	10.75 to 11.00
Low phosphorus melting stock	18.00 to 18.50
Iron car axles	21.00 to 21.50
Steel car axles	19.00 to 19.50
Locomotive axles	25.00 to 25.50
No. 1 busheling scrap	12.50 to 12.75
No. 2 busheling scrap	8.50 to 8.75
Old car wheels	14.00 to 14.50
Sheet bar crop ends	16.00 to 16.25
Cast iron borings	7.50 to 7.75
Machine shop turnings	9.25 to 9.50

Sales are reported of about 2000 tons of cast iron borings at prices that will net slightly under $8, Pittsburgh.

Chicago

FISHER BUILDING, July 27, 1910.—(*By Telegraph.*)

The tone of the steel market is a little better this week, owing to a slight improvement in the volume of current business. Good specifications for plates and structural shapes are reported by the mills, and contracts for fabricated material were equal to the weekly average in this territory for the past two months. The soft steel bar mills are covered with specifications almost as far ahead as they were last winter, but, of course, the business on the books now is of a different character. Large buyers are now specifying far enough ahead to avoid the congestion in the bar mills which embarrassed them last winter. All the merchant mills rolling hard steel bars are now in operation, the Sylvan Mill at Moline having started this week. The Republic bar iron mill at East Chicago also started Monday, following the settlement of the wage scale. The demand for blue annealed sheets continues very good and the market for lighter gauges is also firm at the lower prices which have prevailed recently. The demand for wire products has been light for some time, as this is the dullest season of the year in that line, but the market is apparently firm on this basis, now reported, although there are no official quotations. Store prices in Chicago were reduced this week 10c. per 100 lb. on plates, structural shapes and soft steel bars, making the base price from store 1.80c. The store distributers are now operating on a smaller margin of profit, as they no longer receive the benefit of the differential of $1 a ton from mill prices, which was allowed them until recently. As announced last week, the subsidiaries of the leading in-

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terest are now carrying stocks on consignment in one of the two large store distributing houses here. The weather has been unfavorable for crops the past week. No new orders or inquiries for cars are reported from Western railroads and their miscellaneous purchases are also restricted to the lowest possible limit. The stocks of the railroad storekeepers are running very low. The scrap market is weak and lower and buyers of metals restrict their purchases to early deliveries.

Pig Iron.—There is a little better feeling in the Northern iron market and more business is being done. A local foundry has been in the market for 1500 tons of Northern foundry, but has postponed closing. There is another inquiry for 2500 tons of Northern which may lead to an early sale, as well as the usual scattering inquiries for lots of 500 tons and less. A steel foundry interest at Milwaukee has recently closed for 1000 tons of low phosphorus. In Southern grades the market is very quiet. The quotation of $11.50, Birmingham, for No. 2 has become practically a nominal price in this market, as no business of any moment is being done at this figure excepting occasional small lots. It is generally conceded by the Southern interests in this market that a firm offer for a round lot of iron for August and September shipment would establish a price of $11.25 or even lower, but so long as no business of this character is reported below $11.50, the price can be allowed to stand as a nominal quotation for this territory. The foundries are all reported busy and the melt is not far, if any, below the normal for this season of the year. Buyers, however, are generally covered for several months and are awaiting more definite information regarding crops, the attitude of the railroads and other factors that will influence business during the fall and winter. More activity on the part of the railroads in buying material and equipment would have a decided influence in the market, as it would increase the melt in this territory and create more interest in last quarter deliveries. The Northern interests are getting better shipping orders on contracts, but the Southern interests report many requests for suspension of deliveries. The following quotations are for July, August and September, Chicago delivery:

Lake Superior charcoal	$18.50 to $19.00
Northern coke foundry, No. 1	17.00 to 17.50
Northern coke foundry, No. 2	16.50 to 17.00
Northern coke foundry, No. 3	16.25 to 16.50
Northern Scotch, No. 1	17.50 to 18.00
Southern coke, No. 1	16.35 to 16.85
Southern coke, No. 2	15.85 to 16.35
Southern coke, No. 3	15.60 to 16.10
Southern coke, No. 4	15.35 to 15.85
Southern coke, No. 1 soft	16.35 to 16.85
Southern coke, No. 2 soft	15.85 to 16.35
Southern gray forge	15.10 to 15.60
Southern mottled	14.85 to 15.35
Malleable Bessemer	16.50 to 17.00
Standard Bessemer	17.90 to 18.40
Jackson Co. and Kentucky silvery, 6%	19.40 to 19.90
Jackson Co. and Kentucky silvery, 8%	20.40 to 20.90
Jackson Co. and Kentucky silvery, 10%	21.40 to 21.90

(*By Mail.*)

Billets.—Buyers are dependent upon Eastern mills for their supplies, as the local mills report that they have none to offer.

Rails and Track Supplies.—There is a fair run of business in standard rails coming in the form of small orders from minor roads. The track supply business continues good and Chicago mills have good specifications on their books. We quote standard railroad spikes at 1.75c. to 1.85c., base; track bolts with square nuts, 2.40c. to 2.50c., base, all in carloads, Chicago. Light rails, 40 to 45 lb., $27; 30 to 35 lb., $27.50; 16, 20 and 25 lb., $28; 12 lb., $29, Chicago.

Structural Material.—A satisfactory feature of the market is that there is a good run of structural contracts notwithstanding the fact that promoters of office buildings are having more difficulty in financing loans. The Chicago & Northwestern Railroad placed orders for 4600 tons of bridges last week. The Pennsylvania Steel Company received 2100 tons of this business, and the American Bridge Company 2500 tons, while a small lot of 300 tons of ordinary beam bridges was divided between Jones & Laughlin and the Cambria Steel Company. The American Bridge Company also booked 715 tons of bridge business from the Denver & Rio Grande Railroad and 300 tons of wharf shed construction to be erected at Fort Mason, Cal. The Amicable Life Insurance Building at Waco, Texas, was let on a general contract to the Westlake Construction Company of St. Louis, and it is reported that the steel work, amounting to 1550 tons, went to the Noelke-Richards Company of Indianapolis, who also booked 200 tons for a State university library at Austin, Texas. The general contracts have been let on two important office buildings for the Harriman lines, on which the letting of the steel construction has not yet been decided or reported, one of these buildings being for the Union Pacific at Omaha, which will require about 2600 tons of steel, and one for the Southern Pacific at Houston, on which the plans call for about 1700 tons. The mills report a little better specifications and prices are apparently firm on the basis recently established with small lots in many cases going $1 a ton higher. We quote plain material from mill, 1.58c. to 1.63c., Chicago; from store, 1.80c. to 1.90c., Chicago.

Plates.—The mills are doing a little better on specifications owing to car and structural work which has come in recently, but it is reported that there are no car orders pending in the West nor any important inquiries at the present time. Store prices on both structural plates and shapes are reduced this week, following the recent reduction in mill quotations. We quote mill prices at 1.58c. to 1.63c., Chicago; store prices, 1.80c. to 1.90c., Chicago.

Sheets.—Conditions have been such for some time in the sheet market that it is very difficult to follow the prices at which business is actually going. Blue annealed sheets are holding firm at the old figures, and there is a fair demand for black and galvanized, but quotations on both grades of No. 28 sheets are reduced 5c. this week, making the figures below 15c. less on No. 28 black and 20c. less on galvanized than the quotations which prevailed during the winter. We quote as follows, Chicago: No. 10 annealed, 1.93c.; No. 28 black, 2.43c.; No. 28 galvanized, 3.48c. Prices from store, Chicago, are: No. 10 blue annealed, 2.20c. to 2.30c.; No. 28 black, 3c. to 3.10c.; No. 28 galvanized, 4c. to 4.10c.

Bars.—The bar mills of the leading interest here are sold almost as far ahead on soft steel bars as they were last winter, owing to the heavy specifications that have come in from the agricultural trade. The hard steel mills are also doing well, as there has been a great increase in concrete construction this year, which makes a large demand for concrete bars. The iron bar market, however, continues very quiet. One leading railroad is in the market with an inquiry for 10,000 tons, deliveries running into the first half of 1911, but the mills are not eager to take any long time contracts at the present price of bar iron. It is possible that 1.40c. might be shaded on very attractive business for early delivery, but this figure is the bottom price for current business. Subject to the usual delay in delivery of soft steel bars, we quote as follows: Soft steel bars, 1.63c. to 1.68c.; bar iron, 1.40c. to 1.45c.; hard steel bars rolled from old rails, 1.50c. to 1.60c., all Chicago. From store, soft steel bars, 1.80c. to 1.90c.

Rods and Wire.—The lack of official quotations from the leading interest has caused more or less confusion in the wire trade, but the market seems to have found a pretty firm bottom, for ordinary industrial or jobbing trade, at 1.50c., Pittsburgh, base, for plain annealed wire; 1.80c. for galvanized fence wire; 1.70c. for nails and painted barb wire, and 2c. for galvanized barb wire. The readjustment came at a time when stocks were light among industrial buyers as well as jobbers, a condition which should be favorable for a more active demand. Jobbers' carload prices, which are quoted to manufacturing buyers, are as follows: Plain wire, No. 9 and coarser, base, 1.68c.; wire nails, 1.88c.; painted barb wire, 1.88c.; galvanized, 2.18c., all Chicago.

Merchant Steel.—Store prices have been reduced in Chicago on bars, structural and plates. On the higher grades of merchant steel the demand continues good and customers are willing to pay fair prices. Inquiry from the automobile trade is light at present and industries identified with the agricultural trade are also disposed to hold off awaiting final information on crops. However, the mills which specialize on agricultural steel have received heavier specifications than in any former year at this season.

Cast Iron Pipe.—The leading pipe interest booked 500 tons of water pipe for Decatur, Ill., last week, but the Cheyenne, Wyo., letting has not been reported as yet. Current prices are maintained on routine business, but the weakness in pig iron is reflected in special quotations on any large lettings. On current business we quote, per net ton, Chicago, as follows: Water pipe, 4-in., $28; 6 to 12 in., $27; 16-in. and up, $26, with $1 extra for gas pipe.

Old Material.—The scrap market continues very dull and values show a sagging tendency. Chicago dealers are carrying relatively small stocks and do not show confidence in the future of the market by laying down much material in their yards, although in a few cases it is reported that they are taking in material they have bought and storing it rather than dispose of it at a loss. The scrap market, in fact, feels the brunt of adverse conditions and is affected by the lack of railroad buying of equipment and new material. A leading railroad recently offered a round lot of car wheels in a circular which was sent to the wheel foundries, but received no bids. The maximum that can be obtained for heavy melting steel is $12.50, delivered in the Chicago district. The prices quoted below are for delivery to consumer's works, all freight and switching charges paid. Sellers of scrap, especially from industrial plants, usually receive 50c. to $1 less than the prices quoted in this report, on account of very high switching charges in the Chicago

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district, and to allow also for the dealer's margin. Following prices are per gross ton, delivered, Chicago:

Old iron rails	$16.50 to $17.00
Old steel rails, rerolling	15.75 to 16.25
Old steel rails, less than 3 ft	13.00 to 13.50
Relaying rails, standard sections, subject to inspection	24.00 to 25.00
Old car wheels	14.75 to 15.25
Heavy melting steel scrap	12.25 to 12.75
Frogs, switches and guards, cut apart	12.25 to 12.75
Shoveling steel	11.75 to 12.25

The following quotations are per net ton:

Iron angles and splice bars	$14.00 to $14.50
Iron car axles	19.50 to 20.00
Steel car axles	19.50 to 20.00
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	11.00 to 11.50
Springs, knuckles and couplers	11.50 to 12.00
Locomotive tires, smooth	17.00 to 17.50
No. 1 dealers' forge	10.50 to 11.00
Steel axle turnings	9.00 to 9.50
Machine shop turnings	7.25 to 7.75
Cast and mixed borings	4.75 to 5.25
No. 1 busheling	10.25 to 10.75
No. 2 busheling	8.00 to 8.50
No. 1 boilers, cut to sheets and rings	9.00 to 9.50
No. 1 cast scrap	13.00 to 13.50
Stove plate and light cast scrap	11.00 to 11.50
Railroad malleable	11.00 to 11.50
Agricultural malleable	10.50 to 11.00
Pipes and flues	9.25 to 9.75

Metals.—See paragraph on this subject under the heading "Metal Market," in another column.

Philadelphia

PHILADELPHIA, PA., July 26, 1910.

Little interest in the trade is being shown by either buyers or sellers, and the market drifts quietly along with a general tendency, however, toward trifle easier prices. The crude materials transactions have been extremely light, and while new business in finished materials in this territory is also of small volume, specifications in a number of instances have been quite satisfactory and enable mills to operate on a fairly even basis. There has been practically no business in billets, quotations are nominal, and could be shaded for desirable orders. More irregularity has developed in sheets and prices are lower. Little change is to be noted in the old material situation. Coke is somewhat firmer on moderate sales of foundry grades.

Pig Iron.—The market could scarcely be much quieter. Sales during the week have been small individually and in the aggregate do not reach a very large total. A waiting market characterizes the situation, with neither buyers nor sellers showing any pronounced interest in the situation. The monthly report of the Eastern Pig Iron Association shows stocks on hand to be practically unchanged, with unfilled orders less than 5 per cent. below those of a month ago. One less stack is active, as compared to the number in blast a month ago. This would indicate that consumption was being maintained on a fairly even basis in this district. The bulk of the transactions continue in the foundry grades. The majority of the sales are small, ranging from carloads to those of a few hundred tons, at prices ranging from $16.25 to $16.50, delivered, for standard brands of No. 2 X foundry. Occasional odd lots at a slight concession from these figures are reported, but definite information is lacking. There is no doubt but that some sellers would be willing to accept orders for fair size lots, say, 1000 tons and upward, at $16, delivered, for No. 2 X for last half shipment, although for moderate tonnages hold firmly at $16.25, minimum. Several occasional sellers from outside the territory would doubtless make the same concession. There is, however, an absence of inquiry for any large quantities, buyers as a rule being disposed to take on small lots and await further developments before entering the market for future requirements. Further small lots of low grade iron have been taken by the cast iron pipe foundries, and there are several inquiries still before the trade. The movement in Virginia foundry grades has been light, several small sales at $13.50 to $13.75, furnace, for No. 2 X foundry are reported. At the inside figure and the most favorable freight rate this is equal to $16.30, delivered here. Forge iron continues inactive, $15.25 to $15.50 is a nominal quotation for rolling mill grades, although foundry forge for cast iron pipe making is closed to $15, delivered. Moderate sales of standard low phosphorus iron have been made at the recent market. Basic iron shows no movement. While some makers hold at $15.75, delivered, for this grade, others would willingly take $15.50, and report has it that that figure could be shaded. Eastern consumers, however, show little interest in the market. While prices are practically unchanged, they are by no means strong, and with the exception of those quoted for low prosphorus iron could no doubt be shaded, at least for some brands if desirable business were offered. For moderate lots delivered in buyers' yards, eastern Pennsylvania and nearby points, the following range about represents the market:

Eastern Pennsylvania No. 2 X foundry	$16.25 to $16.50
Eastern Pennsylvania, No. 2 plain	16.00 to 16.25
Virginia No 2 X foundry	16.25 to 16.75
Virginia No. 2 plain	16.25 to 16.50
Gray forge	15.00 to 15.50
Basic	15.50 to 15.75
Standard low phosphorus	22.50 to 23.00

Ferromanganese.—The market is quiet, no inquiry from consumers in this territory being reported. While $39, seaboard, is understood to have been done recently for Western business, sellers in this territory have, in a number of instances, refused to meet this figure.

Billets.—There is very little business reported. A few small lots have been sold, but the larger consumers do not appear interested in the market. Prices are probably less firm, small transactions in open hearth rolling billets being reported at $28.50, delivered in this territory, although that basis could, no doubt, be shaded for any desirable business. Forging billets are still comparatively firm, at $31 to $32, Eastern mill, with the usual extras for high carbons and special sizes.

Plates.—While several Eastern mills refuse to meet lower quotations made by others, adhering to a 1.60c., minimum basis, producers in instances openly quote 1.55c., delivered in this district, for carload orders. New business of any amount does not come out very freely, although there is a better inquiry for ship plates, against bids being made by builders. Specifications are coming to some mills very freely, and in one instance were particularly heavy last week. The bulk of the new orders recently taken have been small individually, large buyers being disposed, under present market conditions, to await developments.

Structural Material.—The demand shows irregularity. No further large propositions have come out, although several fair sized buildings are being figured on. Current business has been largely of a miscellaneous character, sufficient, however, in the aggregate to keep mills comparatively active. Eastern mills still report satisfactory specifications against business already on the books. While prices are not particularly strong, 1.55c. to 1.60c. represents the market for plain shapes delivered in this territory.

Sheets.—Mills show irregularity in point of activity, some being well engaged, with others less active. A fair day to day business is reported, with prices easier. Small lots for prompt shipments are quoted as follows: Nos. 18 to 20, 2.70c.; Nos. 22 to 24, 2.80c.; Nos. 25 and 26, 2.90c.; No. 27, 3c.; No. 28, 3.10c. For good size lots, however, these prices would, no doubt, be shaded.

Bars.—Business transacted has been confined to small lots. On desirable orders for refined iron bars, prices can be shaded, some mills being willing to accept 1.42½c., delivered, for good specifications. Under ruling conditions it is difficult to fix a definite range, although 1.42½c. to 1.55c. about represents the market for refined iron bars, delivered in this vicinity. Steel bars remain firm at 1.60c., delivered.

Coke.—There has been some stiffening in prices of foundry grades, which are now held pretty firmly at $2.25 to $2.50, at ovens, with fairly good sales in moderate quantities. Furnace coke has been inactive, the majority of the consumers having contracted for a good share of their requirements. The following range about represents the quotations per net ton, delivered in buyers' yards in this vicinity:

Connellsville furnace coke	$4.00 to $4.15
Foundry coke	4.50 to 4.75
Mountain furnace coke	3.60 to 3.75
Foundry coke	4.10 to 4.35

Old Material.—The market continues very quiet, but little business being transacted in any grade. The associated mills have not changed their offering price for No. 1 heavy melting steel, or No. 1 railroad wrought, but are not buying very freely. Extensive rejections of shipments on the part of a number of the large consumers is reported, who insist on material being strictly up to grade to insure acceptance. Cast borings have been a little more active at $9.50 to $9.75, delivered. In some grades, however, not enough business has been done to establish a market. The following range about represents bids and offers for delivery in buyers' yards eastern Pennsylvania and nearby points:

No. 1 steel scrap and crops	$14.00 to $14.25
Old steel rails, rerolling	15.50 to 16.00
Low phosphorus	19.00 to 19.50
Old steel axles	20.00 to 20.50
Old iron axles	26.50 to 27.50
Old iron rails	18.00 to 18.50
Old car wheels	14.00 to 14.50
No. 1 railroad wrought	16.00 to 16.50
Wrought iron pipe	14.00 to 14.50
No. 1 forge fire	12.00 to 12.50
No. 2 light iron	7.50 to 8.00
Wrought turnings	9.50 to 10.00
Cast borings	9.50 to 9.75
Machinery cast	14.75 to 15.25
Railroad malleable	14.00 to 14.50
Grate bars	12.00 to 12.50
Stove plate	10.00 to 10.50

The Alan Wood Iron & Steel Company has removed its

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offices from 519 Arch street to the Morris Building on Chestnut street above Broad street, where they will occupy the entire fifteenth floor. The offices of the Heckscher & Sons Company, furnace department, will also be moved from Fourth and Walnut streets to the new location.

Pullman & Stevens, iron, ore, coal and coke merchants, will remove from 238 South Third street on August 1, taking offices in rooms 506-507 Pennsylvania Building. This firm succeeded some years ago J. Wesley Pullman, who conducted the business at the old location since 1887.

Cleveland

CLEVELAND, OHIO, July 26, 1910.

Iron Ore.—The ore movement is still quite heavy, and it is expected that lake shipments during July will exceed 6,500,000 tons, as compared with 7,316,592 tons during June. Ore shippers are now practically entirely out of the market for wild vessel capacity and will furnish cargoes only for the vessels under contract. This means the making of more surplus tonnage and that more boats will have to go to the docks. Taken altogether the condition of the lake trade is worse than at any previous time during the season. A meeting of the independent vessel owners, who in June agreed to withdraw 20 per cent. of their capacity for 30 days, was called for to-day to take action extending the agreement through August. There is no demand for ore. We quote prices as follows: Old Range Bessemer, $5; Mesaba Bessemer, $4.75; Old Range non-Bessemer, $4.20; Mesaba non-Bessemer, $4.

Pig Iron.—The market is still very dull. Foundries that have not yet covered for their last half requirements are holding off as a rule. Prices are weak, but quotations remain about stationary. There has not been an inquiry for some time large enough to test prices in this market. Some of the local and Valley interests state that they will stay out of the market until foundry iron advances to a basis of $15 at furnace for No. 2. One northern Ohio foundry has an inquiry out for 500 tons of No. 2, and inquiries from Erie, Pa. include one 500 ton lot and a 300 ton lot. In Southern iron the sale of a few small lots of 150 tons and under for the last half are reported, but a number of buyers who will need larger tonnages are holding off for lower prices. For the last half $11.50, Birmingham, is being maintained for No. 2, but this price is being shaded to $11.25 for spot shipment. For prompt shipment and the last half we quote, delivered, Cleveland, as follows:

Bessemer	$16.40
Northern foundry, No. 1	$15.50 to 15.75
Northern foundry, No. 2	15.00 to 15.25
Northern foundry, No. 3	14.50 to 14.75
Gray forge	14.15 to 14.40
Southern foundry, No. 2	15.60 to 15.85
Jackson Co. silvery, 8 per cent. silicon	19.25 to 19.50

Coke.—An Eastern furnace interest has placed a contract for 400,000 tons of furnace coke for delivery during a period of two and one-half years on a sliding scale price, based on the price of basic pig iron in the Valley. Another sale reported is 20,000 tons to a local furnace interest for delivery during August. There is still a fair amount of contracting being done in foundry grades, a large share of the buyers covering for their requirements until July 1, 1911. We quote standard Connellsville furnace coke at $1.55 to $1.65, per net ton, at oven, for spot shipment, at $1.80 to $1.85 for the last half. Connellsville 72-hour foundry coke is held at $2.15 to $2.25 for spot shipment and $2.25 to $2.50 for the last half.

Finished Iron and Steel.—The market is generally quiet. Mill agencies report a fair volume of specifications on contract, but not much new business is coming out. The most active demand is for structural material in small lots. The King Bridge Company, which recently took the contract for bridge work in connection with grade crossing elimination work in East Cleveland, placed the contract for the steel during the week, the 1900 tons required being divided between two mills. At a special election held July 22 the voters of Cleveland authorized a $2,000,000 bond issue, the proceeds to be used in eliminating practically all the remaining grade crossings in the city. As the law requires the railroads to bear 65 per cent. of the cost, the work will involve an expenditure of about $5,700,000, exclusive of sidings and switches. This work will require several thousand tons of steel, and it is expected that it will be started in the fall. The bulk of the track elevation planned is along the line of the Pennsylvania Railroad. There is an inquiry out for 500 tons of structural material for a plant for the Seneca Chain Company, Kent, Ohio. Considerable new work is expected to come out shortly in Detroit. We quote structural material at 1.40c. to 1.45c., Pittsburgh, the latter price being for small lots. There is a fair demand for small lots of plates, orders coming from the structural, boiler and tank shops. Plates are quoted at 1.40c. to 1.45c., Pittsburgh. Eastern mills are not meeting these prices in this market. Very little new business in steel bars is coming out, but most consumers are under contract. Good specifications are coming from the agricultural implement makers. Steel bars are firm at 1.45c., Pittsburgh. There is a good demand for steel reinforcing bars. Sheet prices are still very irregular, quotations of different mills varying from $1 to $3 a ton. There is a moderate demand for iron bars and prices are not firm. The usual quotation is 1.40c. at mill. The Empire mill, Cleveland, will start up August 1. Jobbers report a fair stock business, but very few mill orders.

Old Material.—The market continues very quiet and prices on several grades are lower. Mills that have resumed operations still have stocks on hand, and the only demand is for very small lots, for which mills are not willing to pay the usual quotations. The railroad tonnage offered this week includes lists of about the usual size from the Nickel Plate and New York Central railroads. Dealers' prices per gross ton, f.o.b. Cleveland, are as follows:

Old steel rails	$14.50 to $15.00
Old iron rails	16.00 to 16.50
Steel car axles	20.00 to 20.50
Heavy melting steel	13.00 to 13.50
Old car wheels	14.00 to 14.50
Relaying rails, 50 lb. and over	22.50 to 23.50
Agricultural malleable	12.00 to 12.50
Railroad malleable	13.00 to 13.50
Light bundled sheet scrap	9.00 to 9.50

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles	$21.00 to $21.50
Cast borings	5.50 to 6.00
Iron and steel turnings and drillings	6.75 to 7.25
Steel axle turnings	9.00 to 9.50
No. 1 busheling	11.50 to 12.00
No. 1 railroad wrought	13.00 to 13.50
No. 1 cast	11.75 to 12.25
Stove plate	10.50 to 11.00
Bundled tin scrap	11.00 to 11.50

Cincinnati

CINCINNATI, OHIO, July 27, 1910.—(*By Telegraph.*)

Pig Iron.—No change in general conditions is to be noted from last week. Rumors have been circulated of some quiet business being done, which would aggregate a nice tonnage, but when investigated these only turn out to be the regular run of small orders to fill immediate requirements. The exception is the local steel company referred to last week, whose additional purchases foot up 11,000 tons of basic and 3500 tons of Bessemer, which was purchased from three different furnace interests. Some firms are holding Southern No. 2 at $11.50, but for prompt shipment $11 is a more correct figure. Northern irons can easily be obtained at $15, with indications that a firm offer for prompt shipment would shade this a trifle. An inquiry has been received from an Ohio firm for 1000 to 2000 tons of malleable. Malleable is still quoted around $15 to $15.50. As a rule the local interests seem to take a more optimistic view of the situation. For immediate delivery and through the last half, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, we quote, f.o.b. Cincinnati, as follows:

Southern coke, No. 1 foundry	$15.25 to $15.75
Southern coke, No. 2 foundry	14.75 to 15.25
Southern coke, No. 3 foundry	14.25 to 14.50
Southern coke, No. 4 foundry	14.00 to 14.25
Southern coke, No. 1 soft	15.25 to 15.75
Southern coke, No. 2 soft	14.75 to 15.25
Southern gray forge	14.00 to 14.25
Ohio silvery, 8 per cent. silicon	19.20
Lake Superior coke, No. 1	16.70
Lake Superior coke, No. 2	16.20
Lake Superior coke, No. 3	15.70
Standard Southern car wheel	25.25 to 25.75
Lake Superior car wheel	22.25 to 22.75

(*By Mail.*)

Coke.—Foundry coke continues reasonably active and prices are firm. The foundry interests are waking up and those who have not already contracted for a future supply are closing for their requirements. Furnace coke is still inactive, but prices are steady around $1.70 to $1.80 per net ton at furnace. An advance of 5c. to 10c. for Pocahontas furnace grades would be about correct. Both Connelsville and Pocahontas foundry coke are selling around $2.25 furnace, and Wise County is still quoted at from $2.10 to $2.25. With several of the operations having their output sold out, it would not be at all surprising to see all grades of coke take on a small advance at an early date.

Finished Iron and Steel.—With the exception of a reasonable amount of structural material business being booked the finished iron and steel market is very quiet. Beams and channels, cut to lengths, if desired, are quoted at 1.90c. to 2c., warehouse.

Old Material.—There is practically no business being transacted. The yards are well stocked up and both buyers

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and sellers are indifferent. Prices for delivery in buyers' yards, Cincinnati and southern Ohio, are as follows:

No. 1 railroad wrought, net ton	$11.50 to $12.00
Cast borings, net ton	4.00 to 5.00
Steel turnings, net ton	6.00 to 7.00
No. 1 cast scrap, net ton	11.50 to 12.50
Burnt scrap, net ton	8.00 to 9.00
Old iron axles, net ton	16.50 to 17.00
Old iron rails, gross ton	17.00 to 17.50
Old steel rails, short, gross ton	14.50 to 15.50
Old steel rails, long, gross ton	14.50 to 15.50
Relaying rails, 56 lb. and up, gross ton	22.00 to 23.00
Old car wheels, gross ton	12.00 to 13.00
Low phosphorus scrap, gross ton	16.00 to 16.50
Heavy melting steel scrap, gross ton	11.50 to 12.00

Birmingham

BIRMINGHAM, ALA., July 25, 1910.

Pig Iron.—The total tonnage of pig iron actually sold during the past week was comparatively light. Inquiries were also off. The average consumer seems very slow in covering his wants, evidently believing and hoping that he will be able to buy at $11 at the furnace. There has been quite a little talk the past week in regard to $11 iron, but as yet none of the Birmingham producers or selling agencies will admit of having offered or made sales on such a basis; hence $11.50 represents the market here. It is understood that certain high phosphorus Tennessee irons have reached the $11 price, but such is not the case for standard Alabama iron. Some inquiries have been made for delivery during the first quarter of 1911, but the furnace interests refuse to name a price for shipments beyond the present year. It is generally understood that by August 1 two more Alabama stacks will have been blown out, which means a still further reduction in output. The general outlook for the pig iron business, as viewed by those in close touch with the situation here, is not at all encouraging for the next two months. However, it is pointed out that there is good reason to believe that by October 1 there will be a substantial uplift. Charcoal pig iron is quoted at $22 to $22.50, at the furnace. Some sales of this class of iron are being made, but the general market is about in keeping with the coke iron situation.

Cast Iron Pipe.—Business is rather quiet, and in all probability one of the largest plants in the district will be closed down the coming week. The small buying continues, but on account of the unsettled pig iron market most pipe buyers hold back and await developments. No material improvement is looked for until there shall have been a change for the better in pig iron. The following prices are quoted per net ton, f.o.b. cars at the plants here: 4 to 6 in., $23; 8 to 12 in., $22; over 12-in., average $21, with $1 a ton extra for gas pipe.

Old Material.—Nothing startling has occurred in the scrap market, the usual small transactions continuing. The midsummer season, of course, has its bearing, and many of the plants of the country requiring scrap are now idle for repairs, wage adjustments, &c. Only a schedule of nominal prices has prevailed for some time, which is about as follows, per gross ton, f.o.b. cars here:

Old iron axles	$16.50 to $17.00
Old iron rails	12.50 to 13.00
Old steel axles	16.00 to 16.50
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	9.00 to 9.50
No. 1 country wrought	8.50 to 9.00
No. 2 country wrought	8.00 to 8.50
No. 1 machinery	10.00 to 10.50
No. 1 steel	9.00 to 9.50
Tram car wheels	9.50 to 10.00
Standard car wheels	11.00 to 11.50
Light cast and stove plate	7.00 to 7.50

W. W. Jacobs of Hartford, Conn., president of the Shelby Iron Company, was in the district the past week inspecting the company's properties and conferring with the men in charge of operations.

Buffalo

BUFFALO, N. Y., July 26, 1910.

Pig Iron.—The market has been very quiet during the past week, with only a small amount of new business originating in territory tributary to the Buffalo district. Such buying as is being done is for short period deliveries, principally foundry grades. Both inquiry and sales have fallen off materially as compared with the previous week. Consumption on contracts keeps up well, at about the same rate as for several weeks past. Quite heavy shipments are going forward by Erie Canal to New York City and vicinity, mostly on old contracts, but it is only by taking advantage of water shipments that Buffalo furnaces are able to meet competition for new business in that territory. Prices continue to have a sagging tendency. The schedule quoted below gives a close approximate line on the current market, for deliveries covering last half, per gross ton, f.o.b. Buffalo:

No. 1 X foundry	$15.00 to $15.50
No. 2 X foundry	14.50 to 15.00
No. 2 plain	14.25 to 14.75
No. 3 foundry	14.00 to 14.50
Gray forge	14.00 to 14.50
Malleable	15.00 to 15.50
Basic	15.25 to 15.75
Charcoal	18.75 to 19.25

Finished Iron and Steel.—Most of the mill agencies report a good volume of buying for current requirements in bar products, plates and shapes, but that consumers are not yet contracting for fall business, buyers evidently hoping for same reduction in prices in sympathy with the reduction in wire products. Prices on steel bars are being held firmly, with deliveries in six to eight weeks and no lowering of prices in other lines except for wire products. There has been good inquiry during the week for plain shapes and bridge material in connection with Erie Barge Canal work, also for sheet piling, and some contracts have been closed. In fabricated structural lines inquiry has slackened slightly, attributable to some extent to the summer vacation period; but good business is looked forward to for fall construction. Bids are to be received shortly for steel for the Skinner Engine Company's foundry building at Erie, Pa., 150 tons, and for steel for the factory addition to be erected by the Eastman Kodak Company, Rochester. The T. H. Brooks Company, Cleveland, has received contract for the steel work for the five factory building structures of the National Carbon Company, Niagara Falls, 1000 tons. The Buffalo Structural Steel Company for the fabricated steel for the new factory of the Niagara Machine & Tool Company, Buffalo, 400 tons, and the Syracuse Bridge Company for steel work for the Catholic Church of the Assumption, Syracuse. The Lackawanna Bridge Company has the contract and has started work on the large addition to the present general office building of the Lackawanna Steel Company, Lackawanna City (South Buffalo), including the stone and brickwork as well as the steel fabrication and erection.

Old Material.—The market is stagnant, with light demand from mills and very little business being transacted in any line. Prices are stationary, there being no quotable change from last week. The nominal schedule is as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel	$13.25 to $13.50
Low phosphorus steel	17.50 to 18.00
No. 1 railroad wrought	14.25 to 14.75
No. 1 railroad and machinery cast scrap	13.25 to 13.75
Old steel axles	17.50 to 18.00
Old iron axles	22.00 to 22.50
Old car wheels	14.00 to 14.50
Railroad malleable	13.75 to 14.25
Boiler plate	11.25 to 11.50
Locomotive grate bars	11.00 to 11.50
Pipe	11.00 to 11.50
Wrought iron and soft steel turnings	6.50 to 7.00
Clean cast borings	5.50 to 6.00
No. 1 busheling scrap	11.75 to 12.00

St. Louis

ST. LOUIS, MO., July 25, 1910.

As common at this season, the managers of many establishments are taking vacations and in some cases plants are temporarily shut down. Others, on the other hand, are advertising for more operatives. On the whole, general business is in satisfactory condition and this is reflected in the bank clearings, the gain for the week over last year in this city being 13 per cent., and the increase at Kansas City, 12 per cent. There is considerable inquiry for pig iron, but marked irregularity in prices. Coke continues in good demand and prices are firmer.

Coke.—Continued interest is shown in coke, as indicated by inquiries and some resulting sales. In some instances a firmer to a slightly higher market is claimed. Among the sales reported is one of 2500 tons of Virginia foundry, for shipment over a year. Another broker reports an inquiry for 35 cars of Connellsville foundry for a year's shipment. There is some irregularity in prices, with Pennsylvania held stronger than Virginia. For round lots 72-hour Connellsville foundry, for shipment over a year, $2.25 per net ton at oven is asked. In a jobbing way, the price is $2.50.

Pig Iron.—While there is a good deal of inquiry for pig iron, a large percentage of it is regarded as feelers from parties wishing to keep posted. There are, however, fairly good indications of a buying movement partly, it is believed, of a speculative character. There is more disposition to contract for far forward delivery than of late, provided low offers would be entertained. Some business has been booked for the first half of 1911, and there is more pending, though sellers are unwilling to disclose prices at which the contracts were worked. The following transactions were reported: One house, sale of 800 tons No. 2 Southern foundry,

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and 700 tons, mostly Southern, in small lots, and inquiries for about 7000 tons for last quarter and first half of 1911 delivery; another, sales of three lots of 1000 tons each of No. 2 Southern foundry, one lot of 500 tons of No. 2 Southern and one lot of 1000 tons Northern malleable; a third states that specifications on contract are coming in freely. The irregularity in quotations, for Southern iron more especially, was more pronounced, the range being a dollar per ton for the same grade and indicates that some furnacemen are anxious, while others are indifferent for business except at their figures, which are nominally $12, f.o.b. Birmingham; but with others offering at $11.50, $11.25 and even as low as $11, no sales are possible at the outside figures. These figures cover contracts for the remainder of 1910. Southern Ohio is quoted at $15 per ton, f.o.b. furnace.

Finished Iron and Steel.—The leading interest reports the demand for standard rails in this section as limited, but for light rails there is an excellent inquiry coming from both lumber and mining interests, particularly from the coal districts. In structural material there is a fair business doing, both with local and outside fabricators. For bars there is a good demand from all industrial sources, and prices are stronger. The call for track supplies is becoming more general and urgent.

Old Material.—A very dull market still prevails, but the leading dealers are fairly busy making deliveries on prior contracts. There were no railroad offerings the past week. Prices remain unchanged and more or less nominal for most of the list. Car wheels are somewhat firmer. We quote dealers' prices as follows, per gross ton, f.o.b. St. Louis:

Old iron rails	$15.00 to $15.50
Old steel rails, rerolling	14.50 to 15.00
Old steel rails, less than 3 ft	13.00 to 13.50
Relaying rails, standard sections, subject to inspection	25.00 to 25.50
Old car wheels	14.50 to 15.00
Heavy melting steel scrap	12.50 to 13.00
Frogs, switches and guards, cut apart	12.50 to 13.00

The following quotations are per net ton:

Iron fish plates	$14.00 to $14.50
Iron car axles	21.00 to 21.50
Steel car axles	20.00 to 20.50
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	12.50 to 13.00
Railway springs	11.50 to 12.00
Locomotive tires, smooth	16.50 to 17.00
No. 1 dealers' forge	11.00 to 11.50
Mixed borings	6.00 to 6.50
No. 1 busheling	11.00 to 11.50
No. 1 boilers, cut to sheets and rings	9.50 to 10.00
No. 1 cast scrap	10.50 to 11.00
Stove plate and light cast scrap	9.00 to 9.50
Railroad malleable	10.00 to 10.50
Agricultural malleable	9.50 to 10.00
Pipes and flues	9.50 to 10.00
Railroad sheet and tank scrap	8.50 to 9.00
Railroad grate bars	9.00 to 9.50
Machine shop turnings	8.50 to 9.00

Metals.—See paragraph on this subject under the heading "Metal Market," in another column.

New York

NEW YORK, July 27, 1910.

Pig Iron.—Sales amounting in all to probably 6000 to 7000 tons have been made through local offices in the past week. The buyers were chiefly foundries whose purchases have been postponed until the iron was actually needed and then under a particularly attractive offer deliveries running over several months were contracted for. One Brooklyn foundry took 1000 tons and there was also some covering by New Jersey melters. The greater part of the business went to the Buffalo district and deliveries will be made before the close of canal navigation. Little has been done in Virginia, Alabama, eastern Pennsylvania or New Jersey irons. For No. 2 X foundry, Buffalo furnace quotations in this district have been as low as $14.50 at furnace. As a rule foundries show little interest in the market, which is lower than in the previous week. We quote Northern foundry iron at tidewater as follows: No. 1, $16.50 to $16.75; No. 2 X, $16 to $16.25; No. 2 plain, $15.75 to $16. On Southern iron quotations are $16 to $16.50 for No. 1 and $15.75 to $16 for No. 2.

Finished Material.—A large number of small jobs are coming before fabricators week by week, with an occasional contract of considerable size. The largest award in the past week was of 4600 tons of bridge work for the Chicago & Northwestern, the Pennsylvania Steel Company taking 2100 tons and the American Bridge Company 2500 tons. The Pennsylvania Steel Company was also awarded a Scherzer bridge over the new Cape Cod Canal. An important letting of next month is that of an eight-span bridge over the Connecticut River between Saybrooke and Lyme, Conn. It will be built by the State. Several small contracts for railroad bridges are reported in the past week, including 250 tons for the Boston & Maine and 250 tons for the Queen & Crescent, taken by the American Bridge Company; 200 tons for the B. & O. subway at Chicago, and 550 tons for the Louisville & Nashville, the latter being divided between the Virginia Bridge & Iron Company and the Louisville Bridge Company. The Cambria Steel Company was awarded the contract for the new paper mill at Fitchburg, Mass., of the Crocker-Burbank Company, 600 tons, and the new building of the Markle Banking & Trust Company, Hazleton, Pa., 700 tons. The steel for the new railroad shops in Kansas City, Mo., and Hoisington, Kan., calling for 1000 tons, will be fabricated by George W. Jackson, Inc., Chicago. In New York City an apartment house at 102d street and Riverside Drive, 500 tons, was awarded to H. H. Uris. The bids on the New York Central terminal work, over 10,000 tons, go in to-day. Prices of both steel and iron bars are easier, as the developments in general business during the week have not been reassuring and buyers are even less inclined than they were to anticipate requirements. While a number of the Eastern bar iron mills are still closed, the leading mills are supplied with a good volume of work which will keep them engaged for some little time. The plate trade is quiet. Quotations are as follows: Plain structural material and plates, 1.61c. to 1.66c.; steel bars, 1.56c. to 1.61c., and bar iron, 1.45c. to 1.50c., all New York.

Cast Iron Pipe.—The most important Eastern business now in sight is the letting of 5060 tons by the city of Washington, D. C., on which awards are to be made to-day. This business will probably go to one of the Virginia foundries. The general demand continues exceedingly quiet. Carload lots of 6-in. are quoted at $23.50 to $24 per net ton, tidewater.

Ferroalloys.—It is apparent that there has been some speculative selling of ferromanganese as it has been offered under $39 by parties who do not as a rule deal in it. Most sellers in this market, however, are demanding from $39.50 to $39.75, Pittsburgh, and some fair sales are reported at that price. Offerings of Swedish brands of ferrosilicon at $55 to $56 have rather upset the market. The majority of people who have domestic and English ferrosilicon to sell are holding firm at $57 to $58, Pittsburgh.

Rails.—The only sales reported during the week were 2000 tons to a Western railroad, 800 tons to an Eastern railroad and 800 tons of open hearth to a Southern railroad.

Old Material.—No transactions are reported in heavy melting steel scrap. The demand for rolling mill stock is light, about the only business reported in this line being in wrought iron pipe, with some inquiries for old steel axles. The volume of business in scattered lots is probably not up to what it was last week, although some interest continues to be shown in cast scrap, borings and malleable scrap. Quotations per gross ton, New York and vicinity, are nominally as follows:

Rerolling rails	$12.50 to $13.00
Old girder and T rails for melting	11.00 to 11.50
Heavy melting steel scrap	11.00 to 11.50
Relaying rails	20.00 to 21.00
Standard hammered iron car axles	21.50 to 22.00
Old steel car axles	17.50 to 18.00
No. 1 railroad wrought	13.25 to 13.75
Wrought iron track scrap	11.50 to 12.00
No. 1 yard wrought, long	11.50 to 12.00
No. 1 yard wrought, short	11.00 to 11.50
Light iron	5.00 to 5.50
Cast borings	7.50 to 8.00
Wrought turnings	8.50 to 9.00
Wrought pipe	11.75 to 12.25
Old car wheels	12.50 to 13.00
No. 1 heavy cast, broken up	11.50 to 12.00
Stove plate	9.00 to 9.50
Locomotive grate bars	9.00 to 9.50
Malleable cast	12.00 to 12.50

Metal Market

NEW YORK, July 27, 1910.

THE WEEK'S PRICES

Cents Per Pound.

	Copper.			Lead.		Spelter.	
July.	Lake.	Electrolytic.	Tin.	New York.	St. Louis.	New York.	St. Louis.
21	12.62½	12.25	33.30	4.40	4.25	5.20	5.05
22	12.62½	12.25	33.30	4.40	4.25	5.20	5.05
23	12.62½	12.25	33.30	4.40	4.25	5.20	5.05
25	12.62½	12.50	33.30	4.40	4.25	5.20	5.05
26	12.62½	12.50	33.30	4.40	4.25	5.20	5.05
27	12.62½	12.50	33.25	4.40	4.25	5.20	5.05

The copper market has been active during the week and some heavy sales of electrolytic have been made by leading interests. The tin market is cornered and prices have been stationary. Lead shows an advancing tendency. Spelter is quiet but firm.

Copper.—A buying movement in copper, which seems to be due more to the fact that consumers need stocks than because of renewed talk of curtailment, has resulted in advanced prices. The market is firm and there is an undercurrent of confidence as to the future. It is apparent that

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a great deal of copper is going into consumption, and, if there is any curtailment, electrolytic copper at 12c., which some people were freely predicting a week ago, will be a very remote possibility. We quote electrolytic at 12.37½c. to 12.50c. There have been some sales at the former figure, but a large majority of sellers are asking the higher price. One leading interest has disposed of more than 20,000,000 lb. at that figure within the week. Lake copper is held firm at 12.62½c. The exports of copper to date this month have been 19,609 tons. When the London market closed to-day spot copper was selling for £54 10s., and futures for £55 2s. 6d. The sales amounted to 400 tons of spot and 1000 tons of futures.

Pig Tin.—The corner in pig tin, mentioned last week, seems to have been entirely successful and for the first time in several years the price of spot tin, New York, has remained unchanged for a period of six days, as the daily quotations above will show. There will be some good sized arrivals of spot tin in New York around August 1, and this will probably break the corner. In the meantime, however, those who have tin to sell for immediate delivery are getting their price and there has been a steady buying all the week, although the purchasing has not been heavy, as consumers have bought only to tide them over. The London market has been comparatively lower than this market during the week. The arrivals of tin so far this month have been 2959 tons, and there are 2590 tons afloat. In London to-day spot tin was sold for £149 5s., and futures for £150 7s. 6d. Sales amounted to 500 tons of spot and 220 tons of futures. The market was firm. Spot tin sold in New York this afternoon for 33.25c.

Tin Plates.—There have been some cancellations in the tin plate trade owing to the strike among sheet metal workers in New York and vicinity. This has not affected the price, however, as many of the mills are still behind on deliveries. The quotation in New York for 100 lb. coke plates is $3.84.

Lead.—Lead is firmer and the market has a decided upward tendency. The American Smelting & Refining Company continues to quote lead, New York, at 4.40c., but outside sellers are getting as high as 4.45c. There are indications that the leading interest will advance its price soon and the advance will undoubtedly be made at once by other sellers. Sales in the West are very good and during the week the market there has at times been comparatively from two to three points above the New York market. We quote the market at St. Louis at 4.25c., and New York at 4.40c.

Spelter.—Because of the lack of stock in this market, spelter for spot delivery in New York is now 4.35c., but sales are being made in this market for immediate shipment from East St. Louis for 5.20c. Consumers have covered their needs for the present, however, and there is no demand for spelter for spot delivery, so that prices for spot are largely nominal. The market now is 5.05c., St. Louis, and 5.25c., New York.

Antimony.—The antimony market has weakened and outside lots of both Cookson's and Hallett's are being offered at shaded prices. Consumers are taking but little of the metal. The market price for Cookson's is 8.25c., and Hallett's is 8c. Lesser known brands of antimony are offered at 7.50c.

Metals, Chicago, July 26.—A number of orders have been booked for fair sized lots of copper, but consumers are not disposed to buy far ahead. Tin is quoted at 34 cents Chicago, for spot delivery, but the demand is nominal and in many cases consumers trade stocks with each other rather than buy at this figure, a condition which is encouraged by the fact that carload lots for August delivery are quoted a half cent lower. The market prices that are quoted at St. Louis on spelter appear to be limited to large lots, as firm offers for small quantities cannot be placed except at higher figures. The independent producers of lead are well sold up and are asking slightly higher figures, but the leading interest in lead has not changed its quotation. Consumers of antimony in Chicago buy only in small lots, practically a retail business, which explains the spread between New York and Chicago quotations. Old metals are very dull. We quote Chicago prices as follows: Casting copper, 12½c.; lake, 12⅞c. to 13c., in carloads, for prompt shipment; small lots, ¼c. to ⅜c. higher; pig tin, car lots, 34c.; small lots, 35c.; lead, desilverized, 4.35c. to 4.40c., for 50-ton lots; corroding, 4.60c. to 4.65c., for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 5.15c. to 5.20c.; Cookson's antimony, 10¼c., and other grades, 9c. to 10c.; sheet zinc is $7.50, f.o.b. La Salle, in carloads of 600-lb. casks. On old metals we quote for less than carload lots: Copper wire, crucible shapes, 12c.; copper bottoms, 10½c.; copper clips, 11¾c.; red brass, 11c.; yellow brass, 8¾c.; light brass, 6c.; lead pipe, 4¼c.; zinc, 4⅛c.; pewter, No. 1, 24c.; tin foil, 26c.; block tin pipe, 30c.

Metals, St. Louis, July 25.—Lead is strong at 4.35c.; spelter is quiet at 5c. to 5.05c., East St. Louis. Zinc ore is quiet at $38 per ton, Joplin base. Tin is quoted at 33.95c. per pound; antimony, 8.55c.; Lake copper, 12.95c.; electrolytic, 12.85c., all at St. Louis. The demand for finished metals ruled fairly good the past week.

Iron and Industrial Stocks

NEW YORK, July 27, 1910.

The market for securities has gone through another period of heavy liquidation since last week's report. It began when announcement was made of a sharp reduction in the dividend rate on National Lead common on Thursday. This occurred when the stock market was improving under the stimulus of advances in the copper shares. The decline then begun continued through the remainder of last week and was intensified on Monday and Tuesday by reports of serious damage to the growing corn in the Southwest. In this latest downward movement the lowest prices of the year were realized on numerous stocks. The range of prices on active iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows, the low prices given having almost invariably been recorded on Tuesday:

Allis-Chalm., com..	8 - 8⅝	Railway Spr., com.	28 - 31
Allis-Chalm., pref.....	28	Republic, com.....	27 - 31⅝
Beth. Steel, com.....	22	Republic, pref.....	82¾- 91
Can, com.....	7 - 8½	Sloss, com.....	50⅛- 64⅞
Can, pref.....	62 - 68⅞	Pipe, com.....	14½- 15
Car & Fdry, com..	39½- 50⅝	Pipe, pref.....	54 - 56
Car & Fdry, pref..109	-111⅞	U. S. Steel, com...	61¼- 70⅜
Steel Foundries....	38 - 51⅝	U. S. Steel, pref...110½-116¼	
Colorado Fuel.....	22½- 32	Westinghouse Elec.	49½- 60¼
General Electric...134	-144	Am. Ship, com....	80 - 82½
Gr. N. ore cert....	49 - 52⅝	Am. Ship, pref....108	-109½
Int. Harv., com...	85½- 94¼	Chi. Pneu. Tool....	25½- 34
Int. Harv., pref...119	-120	Cambria Steel.....	40 - 43
Int. Pump, com...	36⅝- 43⅝	Lake Sup. Corp....	15¼- 18
Int. Pump, pref...	78½- 80⅞	Pa. Steel, com.....106½-107	
Locomotive, com...	29 - 38½	Crucible St., com..	9¾- 11¼
Locomotive, pref..104	-106½	Crucible St., pref..	67½- 77⅛
Nat. En. & St., com.....	16	Harb.-W. Ref., com.....	32
Pressed St., com...	25 - 32	Harb.-W. Ref., pref.....	92½
Pressed St., pref...	93 - 95¾		

Dividends.—The Wheeling Steel & Iron Company has declared a quarterly dividend of 2 per cent.

The Cambria Steel Company has declared a quarterly dividend of 1¼ per cent., payable August 15.

The United States Steel Corporation has declared the regular quarterly dividends of 1¼ per cent. on the common stock and 1¾ per cent. on the preferred stock.

The Pritchard-Strong Company, Rochester, N. Y., announces that its name has been changed to Pritchard Stamping Company, effective July 15. This has been done so that the name of the company may be more closely identified with the character of its business, which is rapidly expanding into more varied lines of kitchen and household utensils. The management remains identically the same as when the business was established, A. R. Pritchard being president and general manager and A. Q. Pryor, secretary and treasurer. The company now operates factory space amounting to more than 150,000 sq. ft. and manufactures nearly one-third of all the tubular lanterns used in the United States.

The More-Jones Brass & Metal Company, 3122-3144 North Broadway, St. Louis, Mo., has purchased all the machinery and equipment for its new factory addition. The company manufactures car and engine brasses, brass and bronze castings, axles and armature bearings, solder, babbitt metals, &c. It is claimed that the factory will be one of the most complete in this country for the manufacture of alloyed foundry products. The officers of the company are as follows: Edward A. More, president and treasurer; Henry T. Jones, vice-president and general manager; John B. Strauch, vice-president and secretary; Thomas L. Hamilton, assistant secretary; S. W. Crawford, manager railroad department.

A conference was being held in Chicago at the time of going to press between committees of the Western Bar Iron Association and the Amalgamated Association.

Personal

J. Sharpless Worth, president of the Worth Brothers Company, Coatesville, Pa., who has been seriously ill, is reported somewhat improved.

Mark Steese, superintendent of Mary Furnace of the Ohio Iron & Steel Company at Lowellville, Ohio, has resigned, effective August 1. He will be succeeded by William Holtzworth, formerly superintendent of Hannah Furnace of the Republic Iron & Steel Company and for the past year connected with the Worth Brothers Company at Coatesville, Pa.

Harvey Fessler, formerly with the Allegheny Steel Company, Pittsburgh, Pa., has been appointed manager of the new Canton Sheet Steel Company, Canton, Ohio.

Henry W. Nuckols has been made president of the Columbia Motor Car Company, Hartford, Conn., one of the constituent corporations of the United States Motor Company. He is promoted from the vice-presidency.

Edgar Meyer of Eugene Meyer, Jr., & Co., bankers, New York, has been elected a member of the Executive Committee of the Southern Iron & Steel Company, thus completing its membership.

George Gilmour, who has been selected by the Employers' Liability Commission of the State of New York as consulting engineer and special investigator, sailed for Europe last week to inquire into methods of prevention of industrial accidents in Great Britain, France, Belgium, the Netherlands, Switzerland, Germany and Sweden. As American member of the Association for Industrial Insurance and Betterment he will attend the meeting of the General Committee at The Hague September 5, 6 and 7, and will represent the American Museum of Safety at Berlin in October. The tour of investigation will take four months.

Obituary

WM. D. REES, for 25 years well known in the iron ore and vessel trades at Cleveland, Ohio, died in that city July 22, in his sixty-fourth year. As a young man he was interested in iron mining at Marquette, Mich. Mr. Rees was for a number of years president of the Republic Iron Company, whose iron mine on the Marquette range is historic in the Lake Superior ore trade. Its specular ore was the standard of lake ore values in the early days. The property is now owned by the Cambria Steel Company. Mr. Rees was also connected for a time with the Lake Superior Iron Company, which in 1901 was acquired by the United States Steel Corporation. The management of the Republic Iron Company's ore and vessel properties was transferred to the offices of M. A. Hanna & Co. several years ago.

RALPH SCOTT, who was for many years one of the business representatives of *The Iron Age*, died in New York City recently from a complication of diseases. Mr. Scott was over 70 years of age, but retained not only his faculties but a great deal of vigor, and at the time of his death was engaged in a number of enterprises. He had a wide circle of acquaintances, particularly in the South, in which he took a great interest and to which he devoted much of his time. He was an Englishman by birth and a year ago spent some time at his old home.

The Lack Malleable Iron Company's Enlargement.—The Lack Malleable Iron Company, Paducah, Ky., has recently overhauled its plant, installing a new melting furnace, making extensive improvements in the annealing department, and adding nickel plating, japanning, tinning and machine departments. The company has absorbed the Wm. P. Brown Mfg. Company, Racine, Wis., manufacturer of an extensive line of saddlery, hardware and malleable iron castings. The Lack Malleable Iron Company has taken up this line, adding tank lugs, clevises, automobile hardware, wagon and carriage hardware, and all classes of malleable iron castings. Wm. P. Brown and J. F. Brown, formerly of the Wisconsin concern, have interested themselves in the Lack Malleable Iron Company. The former has been engaged in the foundry business for the past 30 years, and is well versed in this class of work. Indications point to a very busy year with this company, whose operations, in connection with the Lack Singletree Company, the largest manufacturer of its kind, make one of Paducah's largest industries.

National Irrigation Exposition

In conjunction with the Eighteenth National Irrigation Congress at Pueblo, Colo., September 26 to 30, a National Irrigation Exposition will be held in that city from September 19 to October 1. The scope of the exposition will be as follows:

1. Machines and devices for the development of power used in irrigation and drainage.
2. Methods and devices for the transmission of power used in irrigation and drainage.
3. Machines and devices for raising surface and ground waters for irrigation and drainage purposes.
4. Methods and devices for distributing water to users thereof and to lands.
5. Machinery, devices and methods for the economical cultivation of irrigated and agricultural lands.
6. Plans and models of existing or contemplated irrigation and drainage systems.
7. Products of agricultural and horticultural lands.
8. Literary, graphical and pictorial presentation of knowledge pertinent to the subject of irrigation and drainage.
9. Miscellaneous exhibits, including measuring instruments and devices, weirs, automatic water registers, smudge pots, spraying devices.

Further information can be had from L. M. Markham, director of exhibits, Pueblo.

Texas Iron Ore Tested in a Pennsylvania Furnace.—The initial shipment of some 600 tons of Texas iron ore, which arrived some weeks ago on the steamship Luckenbach at Philadelphia, Pa., consigned to E. J. Lavino & Co., has been worked with entire satisfaction in one of the Schuylkill Valley furnaces. Further shipments will be made as soon as the necessary machinery for the economical handling of the ore can be installed, deliveries of which are then to be made to furnaces in the East as well as the Central West. It will be several months, however, before any extensive shipments will be made. The analysis of the above cargo, from samples taken by A. S. McCreath & Son, was printed in *The Iron Age* of July 7.

Blast Furnaces Building and Rebuilding.—The American Iron and Steel Association reports that on June 30, 1910, there were 16 entirely new furnaces in course of construction, of which 15 will use mineral fuel and 1 will use charcoal, as follows: New York, 3; Pennsylvania, 6; Ohio, 4; Illinois, 2, and Michigan, 1. In addition 1 furnace in Virginia was partly erected but work had been suspended. Six furnaces were being rebuilt, all mineral fuel, as follows: New Jersey, 1; Pennsylvania, 1; Alabama, 2; Tennessee, 1; Wisconsin, 1.

The E. I. du Pont de Nemours Powder Company, Wilmington, Del., is extending the use of electric power in all its plants. Among its recent orders from the Allis-Chalmers Company, Milwaukee, are 11 type K direct current motors for its plant at Wilpen, Minn., and 15 induction motors for its works at Hillside Junction, Pa.

The Machinery Markets

The railroads have become more active in machinery buying in many parts of the country. There are inquiries before the trade from the Eastern lines, and Cincinnati reports good sized inquiries from the Pennsylvania lines west, the Baltimore & Ohio Southwestern and the Louisville & Nashville. The Chicago, Burlington & Quincy and the Rock Island have recently been buying machine tools. The automobile trade also shows signs of increased activity. An Eastern motor manufacturing company has just bought against a good sized list, and in New England the Providence Engineering Works is making inquiries on a long list of machine tools to manufacture automobile parts. In both Cleveland and Detroit inquiries from automobile manufacturers are attracting attention. Good reports come from the Gulf States, where manufacturers are buying chiefly for repair work. The outlook is excellent in Pittsburgh, where a deal of figuring is being done on future requirements. In San Francisco there is a lull, which is considered a result of labor troubles which have rather upset manufacturers' calculations. In St. Louis new enterprises and factory additions are attracting attention, and business in that market is generally reported from fair to excellent. In Philadelphia the usual summer dullness prevails. In a number of machinery centers the export houses are doing a good business. This is particularly true in New York, where there has been some buying for sugar plantations for Cuba and Porto Rico and in the South where equipment is being purchased for shipment to Central and South America.

New York

NEW YORK, July 27, 1910.

Business in the New York machinery trade continues good, and there is every indication that a number of the leading houses will book a better business in July than they did in June. During the week the New York Central Railroad has been making inquiries which indicate that the company will shortly spend about $20,000 for machine tools for shop needs. The Pennsylvania Railroad officials are showing more interest in machine shop equipment, according to inquiries before the trade, and there are hopes that other railroads will soon become active buyers. Orders were placed in this territory by a recently formed motor company for equipment aggregating more than $25,000, and a number of other large orders were booked during the week.

The Canadian railroads and locomotive and car manufacturers are by far more active than those in the same lines in this country. Most of the car repair shops in Canada, according to machinery men who have recently visited that country, are especially busy and car and locomotive manufacturers who are running their shops full time have been placing some good orders for machinery requirements in this market.

Manufacturers of sugar mill machinery, power equipment, &c., have been doing some good business with Cuban and Philippine plantations of late and some fair orders have come from Porto Rican sugar mills. It is said that the sugar crop in those countries has been especially heavy this year and a good crop is always followed by extensive purchases of machinery on the part of the owners of the sugar plantation. The Hoover-Owens-Rentschler Company, through its New York office, 39 Cortland street, has within the last few weeks booked a number of large orders for heavy engines which are to be sent to sugar plantations in the countries mentioned.

Westinghouse, Church, Kerr & Co., 10 Bridge street, New York, will construct, for the Utah Light & Railway Company, Salt Lake City, Utah, a hydroelectric plant to generate 11,000 hp., which will be used as a reserve station for the light and railway company. The plant will be located on the Jordan River, near the company's present transformer station and steam plant, and the cost of the proposed plant is estimated at about $600,000. When completed it will supply electricity for lighting, power and street railway operations in Salt Lake City and Ogden. In addition to steam turbines there will be installed automatic coal handling equipment, including link belt conveyors and automatic stokers. The building has been designed so that it can be expanded to an ultimate capacity of 75,000 hp.

The improvements at the plant of the Pennsylvania General Electric Company, Erie, Pa., for which a small list of machinery is out, mention of which was made in *The Iron Age* of last week, will include the construction of a gray iron foundry, 372 x 400 ft. in size, and a machine shop 160 x 400 ft. Contracts have been closed for the construction of both of these buildings and each of them is designed so that it may eventually be extended to a length of 800 ft., doubling the capacity of the present construction. These improvements seem to indicate that the General Electric Company is going right ahead with the construction of a large plant at Erie for the establishment of which preparations have been under way for several years. It is understood that a temporary power plant will be installed in the machine shop, the size of which is unknown.

The United States Motor Company, 505 Fifth avenue, New York, is building a plant, 150 x 1050 ft., at Detroit, Mich., for the manufacture of Sampson trucks. The company has announced that the entire building will be completed by September 15 and will be put in operation at once. When the plant is completed it will include a drop forge foundry and miscellaneous shops, and it will enable the Alden-Sampson Mfg. Company to produce all of its two-ton trucks in Detroit. Its heavy duty 3, 4 and 5-ton trucks will be made at its Pittsfield plant, where $125,000 was recently spent for new machinery.

The Griscom-Spencer Company, 90 West street, New York, which was reported as having taken over the plant of the Goubert Mfg. Company, Bergen Point, N. J., announces that it has not taken over the plant, but has acquired the patterns, good will and unfilled orders of the Goubert Mfg. Company, and will continue to manufacture Goubert heaters and Stratton steam separators at the shops of the Griscom-Spencer Company at Jersey City, N. J. A. A. Goubert has become identified with the Griscom-Spencer Company, and will have charge of the sales of the Goubert specialties.

Contemplated extensions of the elevated lines in Manhattan and the Bronx will result in heavy expenditures on the part of the Interborough Rapid Transit Company for power equipment. The plans include extensions to the Second and Third avenue lines and an extension on Jerome avenue, with a new bridge over the Harlem River. It is understood that the company is only awaiting the approval of the Public Service Commission before going ahead with the work.

An automobile garage and repair shop to cost $30,000 is to be built at Halsey and Bleecker streets, Newark, N. J., for Benjamin Lissner. The structure will cover an area 51 x 89 ft., and will be four stories. In addition to a line of machine tools and other equipment for repair shop purposes, a three-ton freight elevator will be installed.

The Niagara & Erie Power Company, which is controlled jointly by the Niagara, Lockport & Ontario Power Company and the Buffalo & Lake Erie Traction Company, is making preparations to erect transmission lines to furnish Niagara power to Dunkirk and Westfield, N. Y., and other towns along the southern shore of Lake Erie as far west as Erie, Pa., with a branch to Jamestown, N. Y. It has applied to the Public Service Commission, Second District, for permission on this account to issue $100,000 in capital stock and $500,000 in bonds, with a mortgage to bondholders which will permit the increasing of the bond issue to $1,250,000. The Niagara, Lockport & Ontario Power Company already has a transmission line in operation from Niagara Falls to the Lackawanna Steel Company's plant, South Buffalo, from which point the new line will be extended westward along the right of way of the Buffalo & Lake Erie Traction Company. A number of substations are to be built and equipped.

Charles H. Everett, 424 White Building, Buffalo, N. Y., was low bidder for the power and lighting plant to be built by the Erie County Penitentiary at Pennsylvania street and the Erie Canal, including power house and equipment.

Col. Francis G. Ward, commissioner of public works, room 1, city hall, Buffalo, N. Y., is considering the purchase of two steam-turbo generators of 5000 kw. capacity for the new water works pumping station, foot of Porter avenue; also generators for the lighting of streets and public buildings, and bids will be asked for as soon as proper resolutions are passed by the Common Council.

THE MACHINERY MARKETS

In accordance with resolutions passed by the Board of Councilmen, city of Buffalo, N. Y., Francis G. Ward, commissioner of public works, will advertise for apparatus and equipment for vocational school in district No. 20, comprising 25 direct connected motor head lathes, Oliver No. 53 A, or equal; one direct connected motor head lathe, Oliver No. 53 E, or equal; one 10-hp. motor generator; one universal saw, with motor; one band saw, with motor; one grinder; one jointer; 26 Sheldon woodworking benches, Sioux City model, or equal.

The Sufferson-Weisburg Company, dress manufacturer, 145 Greene street, New York, will establish its manufacturing plant at Lyons, N. Y., where a two-story brick factory 150 x 150 ft. with boiler and engine room 30 x 30 ft. will be built and equipped.

The David Madole Hemmer Company, Norwich, N. Y., has let contract for construction of a two-story factory building 30 x 48 x 200 ft.

The Erie Lithographing Company has completed plans for the extensive enlargement of its plant at Erie, Pa.

The National Carbon Company, Cleveland, Ohio, has awarded contracts for construction of its Niagara Falls, N. Y., plant, which will consist of five factory buildings to cost $250,000. The buildings were designed by the Osborne Engineering Company, Cleveland.

The Kelly Electric Machine Company, Buffalo, N. Y., Guilford W. Frances, president, 36 West Seneca street, manufacturer of routing machines, floor scraping machines, &c., is having plans prepared for a factory building 50 x 140 ft., to be erected in the Black Rock manufacturing district.

The Babcock & Wilcox Company, New York, has received contract from the Elmira Water, Light & Railroad Company for two 600-hp. boilers to be installed in its plant on Madison avenue, Elmira, N. Y., where extensive improvements and additions to equipment are being made.

The Empire Electric Company, Franklinville, N. Y., has had plans prepared for a complete new lighting system and for rebuilding its distributing system. Considerable new equipment, including transformers and switchboard, will be required. H. B. Sweet, consulting engineer, Clarendon Building, Utica, N. Y.

The Electrolytic Products Company, Buffalo, N. Y., Frank A. Abbott, secretary, 707 D. S. Morgan Building, has purchased a factory site of two acres at Elmwood and Hertel avenues and is having plans prepared for a plant to be erected and equipped for the manufacture of radiators for automobiles. Copper radiators will be made by an electrical deposit process under patents which the company owns.

The Dominion Abrasive Company, Toronto, Ont., has secured a factory building at New Toronto and will equip same for the manufacture of emery wheels.

Chicago

CHICAGO, ILL., July 26, 1910.

Business is running light in the Chicago machinery market, but dealers generally concur in the opinion that the dullness in the trade is no more pronounced than is usual at this season, based on the experience of former years. The hot humid summer through the West has had a dragging effect on new enterprises, and business men who are not away on vacations are not in the mood to take up new business except when absolutely necessary. Salesmen who are out through the shops report that manufacturing activity is going on at a comfortable rate, as machine shops and factories are all busy. A feature of the market which creates a strong undertone of confidence is that practically all of the very large industrial concerns in the Chicago district are either purchasing new machines and tools or have inquiries out on which they expect to close in the near future. This refers to large industries like the Illinois Steel Company, the International Harvester Company, the Western Electric Company, the Otis Elevator Company, the Allis-Chalmers Company and other interests of the same character. This business will undoubtedly prove a strong feature of the fall trade. There is also talk of more business with railroads in the near future. The Northwestern has closed on the list which that company issued some time ago, and the Chicago, Burlington & Quincy will close in the very near future on its list of tools for the Havelock, Neb., shops. The Rock Island has recently purchased $15,000 to $20,000 worth of tools on a small list.

News from the automobile industry is not so encouraging. Some of the largest concerns in the automobile business are canceling orders which they placed some time ago for delivery this fall or winter, and in other cases they are asking the machine tool people to delay shipments. Evidently conditions in the automobile industry are not so favorable for further expansion as was expected a few months ago. Fortunately for the machine tool manufacturers, their market has broadened out in the past year to such an extent that the loss of new business from the automobile people will not prove so embarrassing to them. It will enable them to make earlier deliveries to other customers for milling and automatic machines.

Plans are now in preparation for a manufacturing plant to be erected by the Illinois & Missouri Automobile Company, Quincy, Ill.

The commissioners of the National Transcontinental Railway, Ottawa, Ont., have ordered from the Whiting Foundry Equipment Company, Harvey, Ill., a large line of foundry cranes. The contract calls for 20.

A two-story factory, 80 x 180 ft., is being erected in Indianapolis, Ind., by the Ceneral Folding Box Company.

Machinery for a water works system will probably be purchased within the next few weeks at Toulon, Ill.

The Illinois Cast Iron Pipe & Foundry Company, Chicago, has been incorporated by A. M. Ozburn, W. M. Umbdenstock and A. G. Bower.

Clapp, Nordstrom & Riley, Chicago, representatives of the Davenport Locomotive Works and the Western Wheel Scraper Company, have purchased a tract of land at Clyde, Ill., which they are fitting up for handling the implements which they carry in stock. A shop, 60 x 100 ft., is being erected which will be used for repairs. This shop will be equipped with a number of machine tools, none of which have been purchased.

H. E. Hoskin has opened a yard at 558-60-62 Maxwell street, Chicago, and will deal in scrap iron, metals, rubber, old machinery, &c., and is in the market for a motor driven scrap cutting shear.

The Marshall & Huschart Machinery Company, Chicago, is moving its large stock of machine tools from 62 and 66 South Canal street to the company's large new building at 17 South Jefferson street.

S. F. Bowser & Co., Fort Wayne, Ind., manufacturers of oil storage systems, automatic measuring tanks, &c., have increased the capital stock of their Canadian branch for the purpose of making extensive additions to the plant at Toronto.

The Andrews Wire & Iron Works, Rockford, Ill., has acquired a plant at Watford, Canada, located on the Grand Trunk Railway, which it expects to have in operation in a short time. While manufacturing will only be done on a small scale at present, it is the intention of the company to gradually increase its facilities for the manufacture of the entire line now made in its plant at Rockford. Stockholders of the company will meet in special session August 8 to consider the question of increasing the capital stock of the company from $20,000 to $140,000 and the installation of a sprinkler system in its Rockford plant.

The George Whiting Company, 1413 West North avenue, Chicago, manufacturer of punches and shears, has purchased property at the northeast corner of Elston and Wabansia avenues on which it will erect a machine shop at an expenditure of from $40,000 to $50,000, plans for which are now being prepared. It is understood that the company will not purchase any new equipment, as the new shop will be equipped with machinery from the company's present factory.

The Brown-Smith Battery Company, Bloomington, Ind., has been incorporated with $25,000 capital stock to manufacture storage batteries. The directors are G. H. and C. S. Smith, Charles Rawles, N. O. Pittinger and O. W. Brown.

The Indiana Box Company, Anderson, Ind., has increased its capital stock from $100,000 to $250,000. J. E. McIlwraith is president.

The Elkhart Paper Company, Elkhart, Ind., has been incorporated with $300,000 capital stock to manufacture paper. The directors are George F. Frederick, H. F. Dayton, Alexander G. Gilman, James B. Coleman and B. Hopper.

Philadelphia

PHILADELPHIA, PA., July 26, 1910.

Transactions in the local market have been unimportant, the usual midsummer dullness being reported by the trade generally. A disposition on the part of buyers to put off placing orders is to be noted, while the vacation period interferes to a considerable extent with propositions under negotiation. The usual run of business, covering day to day sales of shapers, drill presses, lathes and other small tools, has hardly been up to the average. There has been little inquiry from the railroads, an occasional request for a single tool comprising about the bulk of the demand. Manufacturers report an irregular trade, tools and equipment asked for being principally those of the smaller character. As a rule, however, makers report order books still in pretty satisfactory shape, full enough in a number of instances to keep plants fairly well engaged for some four

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to six months ahead. Several contracts for fair sized power equipment have been recently placed, and negotiations for a number of small installations, as well as several of comparatively large capacity, are under negotiation.

In the second-hand machinery and tool trade business drags, the more desirable tools having in a number of cases been pretty well cleaned up.

The trade generally expresses no anxiety as to the ultimate betterment of conditions, although few feel that any marked buying movement will develop during the summer months, the disposition of both buyers and sellers to permit business to drift quietly along, particularly during the heated term.

Revised bids are being taken, it is reported, for the brick and concrete addition, 90 x 141 ft., to the packing plant of the Jacob Ulmer Packing Company, Pottsville, Pa.

The Baldwin Locomotive Works has received an order for 20 Mallet type articulated locomotives from the National Railways of Mexico, delivery on which begins in December.

Dodge & Day, engineers, are at work on preliminary plans for the new plant of the Tabor Mfg. Company, to be located at Stockley street and the Philadelphia & Reading Railway. These engineers are at work on several other large industrial plants, including a power plant proposition, but are not yet prepared to make any announcement.

William H. Boardman has been appointed consulting hydraulic engineer by the Water Committee of City Council of Camden, N. J., and will prepare plans and specifications for the proposed auxiliary water supply for commercial and manufacturing purposes, as well as for additional fire protection. Bonds for $400,000, for financing this separate water supply, have been authorized. The proposed auxiliary system will have a capacity of 10,000,000 gal. daily.

The Norristown Transit Company, Norristown, Pa., has been granted a charter under the State law. A four-mile line in Norristown and extending to Sweedeland, is to be constructed. The directors are Charles E. Engersoll, president; J. R. McAllister, George H. Frazer, E. B. Smith, Garland Holsman and H. S. Farquhar. It is stated that the work of building the road will begin at once.

The Vandyke-Churchill Company, machinery and tool merchant, has removed from 917 Arch street to the Bourse, opening offices in room 652, while a display of tools will be made in the Bourse Machinery Hall, the surplus stock being carried in its warehouse.

Joseph Greer has let a contract for a two-story brick factory, 49 x 195 ft., to be erected at Church and Tacony streets, Frankford, which will be occupied by F. P. Woll & Co., manufacturers of curled hair. The contract for the engine and boiler has been placed, and, while a large amount of the machinery in the concern's present plant will be removed to the new one on its completion, some additional equipment will, it is said, be required.

The R. S. Newbold & Son Company, Norristown, Pa., has recently shipped a large converter, built for the Pierce-Smith Company, for export to Russia. The Newbold Company reports a fair inquiry for small equipment, and is quite busy in its boiler and machine shop departments. A considerable quantity of tube mill equipment has been recently completed for various customers.

The Philadelphia & Reading Railway Company has placed a contract, and city permits have been taken out by Hoover & Sons, to erect a two-story carpenter and paint shop, 42 x 133 ft., on Brown street, east of Ninth street. This work is in connection with the company's improvements and track elevation in that neighborhood.

The Pennsylvania Railroad Company states that the reported new order for 65 locomotives for lines west of Pittsburgh is incorrect. The report was the result of a redistribution of the allotment to build, under an old order, for 90 engines at its Pittsburgh plant. Under the present agreement 65 engines will be built at the Dunkirk plant, and but 25 at the Pittsburgh plant of that company.

The Bartlett Garage Company, Inc., has purchased property from the Porter Estate, between Market and Commerce streets and Twenty-first to Capital streets, on which it proposes to erect a large brick and steel modern garage. J. C. Bartlett is president of the company, which operates a smaller garage at the above location.

The Energy Elevator Company notes the usual summer falling off in demand, although sufficient orders are in hand to keep the plant fully occupied for a long period. The bulk of the recent demand has been for elevators of the hand power type, although several electric power elevators are being installed. Orders for a number of automobile lifts are reported, one of the hand power duplex gear type, 4000 lb. capacity, now being installed in Mount Holly, and another in Medford, N. J. A fair share of orders come from the West and South, while the local demand continues fairly active.

The Bergdoll Motor Company, with an extensive plant at Thirty-first and Dauphin streets, has taken possession of a portion of the C. C. Knight Building, at Sixteenth and Callowhill streets, in which will be established a branch plant for painting and finishing purposes. The new addition gives the company a total factory floor space of over 200,000 sq. ft.

It is proposed at Lancaster, Pa., according to the understanding of manufacturers here, to install an auxiliary pumping station. An ordinance to that effect is now pending.

Dealers here have been figuring with the Mack Motor Car Works, Allentown, Pa., on equipment for a machine shop extension of considerable size.

The Bonney Vise & Tool Works, Allentown, Pa., is reported to be enlarging its machine shop.

Pittsburgh

PITTSBURGH, PA., July 26, 1910.

There is at present considerable demand for special machinery, which runs chiefly to the larger sizes, and for some of the plants in this district a very profitable line of business has recently developed in equipment of that character. In current inquiries outside of the metallurgical field nearly all leading industries of the United States are well represented. For some of these the actual purchases are being delayed until early fall, but they have, in most instances, been practically determined upon at this time. Nearly every contract also involves power machinery, which takes the form mainly of electric drive. This is usually bought separately, however, and can be ordered some weeks or months later than the operating equipment, owing to better deliveries.

The machine tool market is suffering a temporary lull. Dealers are taking some orders from day to day, and they have been called upon this month to do a good deal of figuring on future requirements, but one hears of few bookings of any size. A large amount of business is in prospect, however. Manufacturers expect to be in a position to make autumn deliveries with much greater certainty than last year, when the sudden rush of fall buying caught them unprepared. Some have managed to accumulate considerable stocks, either of complete machines or of the parts which it takes longest to produce, and there will be far more system in their operations than during the period of general demoralization which prevailed not many months ago.

The annual meeting of stockholders of the Westinghouse Electric & Mfg. Company comes this week. A very satisfactory report will undoubtedly be presented. It is reliably stated that the company is starting in on the second half of the calendar year with the best prospects that it has had for some years.

The McKeesport & Mifflin Bridge Company has been organized to build a bridge over the Monongahela River at McKeesport, Pa. The incorporators are stated to be C. P. Goehring, Irwin, Pa., and M. M. Kirkland, J. M. Hoffman, T. Frank Wolf and Geo. Baehr, McKeesport.

Contracts are being let by the Baldwin Forge & Iron Company for the construction of its new plant at Parkersburg, W. Va., which will be two stories, 70 x 680 ft. The business has heretofore been conducted in Columbus, Ohio, where one of the prison shops was operated under a lease from the State.

Among the light manufacturing companies of this district, the Wolverine Company, Pittsburgh, which occupies quarters in the Imperial Power Building, has been extremely busy all through the season. Its activities comprise metal specialties, stamping, die making, &c., together with experimental work in considerable variety.

The Union Utilities Company, Morgantown, W. Va., is engaging V. F. Hammel of Pittsburgh to supervise the construction of its power house improvements and water supply system.

Mackintosh, Hemphill & Company, Pittsburgh, have started the second half of the year with a greater number of unfilled orders for rolling mill machinery, including power units, reversing engines and blowing engines, than for a number of seasons. Heavy steel castings for various purposes are also largely in demand.

Orders for De Laval steam turbines and turbine pumps, which are handled by the Dravo-Doyle Company, Pittsburgh, have been coming here this season in liberal volume, as the result of the economy demonstrated by units already in service. These units, including low pressure turbines, are being extensively used in steel mill service.

B. M. Everson, Pittsburgh, who handles second-hand and rebuilt machinery, is finding a good sale for power house equipment of every description.

Machinery for an electric power plant will be required in due course by the Pittsburgh, Steubenville & Wheeling Street Railway Company, which has been organized to build a

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traction line connecting the cities mentioned. The incorporators include W. E. Hildebrand, whose address here is given as the Oliver Building. The charter application mentions as the first link in the system a line of 4 miles between Dormont and Bridgeville.

Activity in the petroleum producing districts of the United States has kept the eight manufacturing plants of the Oil Well Supply Company, whose headquarters are in Pittsburgh, operating to their full capacity. The company's output includes complete equipments for drilling wells and maintaining them in service. In the natural gas districts a similar line of work has been extensively taken up with equal success, thereby creating a demand for much auxiliary machinery which other companies are supplying.

Heavy machinery, designed for an output of 500 to 600 tons of crushed rock daily, together with pulverizing mills, will be installed by the Wheeling Limestone Company, recently organized at Wheeling, W. Va.

The J. & J. B. Milholland Company, Pittsburgh, has been awarded contracts for power plant equipment as follows: Dennison Coal & Fuel Company, Dennison, Ohio, a 200-hp. boiler and engine, a tailrope haulage system and tipple equipment; Sterling Coal Mining Company, Washingtonville, Ohio, a complete haulage system; Pittsburgh-Buffalo Company, for installation at the Mariana mines, an endless rope haulage system.

Reports are that George A. Wallace of New Castle, Pa., with some associates has made plans for the building of a large manufacturing plant at Haselton, Ohio. It is stated that 25 acres of land has been purchased for the proposed plant. No information has been given out as to the lines of product to be made.

The Irvine Steel Forge Company, Irvine, Pa., is about to erect a forge building 40 x 150 ft., and a machine shop 40 x 60 ft. The company will engage in the manufacture of forgings for all kinds of engine and automobile construction.

The Pittsburgh Emery Wheel Company, Park Building, Pittsburgh, Pa., works at Rochester, Pa., has recently made a change in its management. Charles G. Smith is now president; J. Walter Hetzel, vice-president and secretary, and Albert W. Smith, treasurer. David B. Hyde, formerly vice-president, has resigned.

The Bessemer Gas Engine Company, Grove City, Pa., has recently made sales as follows: National Aluminum Company, Clarksburg, W. Va., 300-hp. engine to drive generator; Pittsburgh Piping & Equipment Company, Pittsburgh, 75-hp. engine.

The Riddle Construction Company, Johnstown, Pa., recently incorporated, has not yet completed its organization, but Henry Riddle will be president. The company will manufacture coal mine equipment, and will also construct water works and engage in other kinds of engineering work.

Cleveland

CLEVELAND, OHIO, July 26, 1910.

The local machinery market has apparently settled down to a period of midsummer dullness. Some fair business was booked during the week, but dealers now have very little in prospect and new inquiries, which are scarce, are mostly for single tools. While the demand for standard tools has become very light, makers of some lines of machinery report a fair volume of orders. In electrical equipment no large inquiries are being figured on, but there is a fairly good demand for smoll motors. Builders of electric cars and locomotives report a good amount of work on hand and considerable inquiry. The demand for electric cranes is also holding up well, and crane building plants in this territory are well filled with work. Some new contracts for ore handling machinery are being figured on. Locomotive cranes are also moving fairly well. Railroad orders for machine tools are being held up, and very little business is coming from the automobile industry.

While some manufacturing plants in metal working lines still have enough orders to keep running full and have not experienced a slackening in the demand, others notice some falling off in business and have laid off some of their workmen. In the foundry trade the demand for light gray castings continues very good, and most of the local foundries have about all the work they can do.

The Reliance Electric & Engineering Company, Cleveland, will have plans completed August 1 for a new plant that it will erect on East Collamer street. There will be a one-story machine shop 80 x 160 ft. and an office building 40 x 100 ft. The new plant will give the company double its present capacity. The company will buy some new machine tools, but its purchases will not be large as its intention is to gradually add to its equipment. Its requirements are largely lathes, milling machines and drill presses in medium sizes.

F. E. Myers & Bro., pump makers, Ashland, Ohio, have bought a tract adjoining their present site and will shortly begin the erection of a new foundry. Owing to the growth of the company's business their foundry capacity has been inadequate for some time and outside foundries have been furnishing some of the castings. Plans for the new foundry have not yet been prepared. It is the intention to build a plant that will employ 75 additional workmen.

The Baldwin Forging & Tool Company, manufacturer of spades, shovels and scoops, which is now operating at the Ohio Penitentiary, will remove from that institution on account of the operation of the Wertz law abolishing contract labor and will build a large plant at Parkersburg, W. Va. The buildings will be of brick and concrete and will occupy a ground space of about 100,000 sq. ft. They will consist of the following: Main building, 60 x 860 ft.; warehouse, 60 x 200 ft.; handle warehouse, 60 x 200 ft.; machine shop, 60 x 100 ft.; pickling room, 50 x 60 ft.; steel warehouse, 60 x 100 ft.; office building, 50 x 50 ft. The new plant will cost about $300,000 and give employment to about 500 men.

The Akron-Selle Company, Akron, Ohio, will branch out into the manufacture of automobile trucks and will erect a new plant for that purpose, probably at Akron, although an option has been secured on a site in Kent, Ohio. The plans provide for a four-story steel and concrete building 62 x 162 ft. It is expected that the contracts will soon be placed.

The Brown Hoisting Machinery Company, Cleveland, has secured the contract from the Navy Department for rebuilding the superstructure of the floating pontoon crane Hercules, which recently broke from its moorings at the Brooklyn Navy Yard and was wrecked in a storm. The crane was originally built by this company. The Brown Hoisting Machinery Company has also recently taken a contract for car haul for the Semet-Solway Company of Syracuse, N. Y.

A number of business men in Mansfield, Ohio, are interested in a company that has been formed to establish a plant in that city for the manufacture of automobiles. The company has been incorporated, with a capital stock of $200,000, under the name of the Forth Automobile Company. The incorporators are W. M. Hahn, Charles Hoffman, W. H. Shryock, C. S. Ashbrook and S. J. Colwell.

Arthur J. Peet has established a machine shop at 520 Prospect avenue, S. E., Cleveland, under the name of the Peet Machine Company. The company will make special machinery and dies.

Ground has been broken for a large addition to the Elmore automobile plant at Clyde, Ohio, owned by the General Motors Company. The present plant is overcrowded with machinery and it is announced that no additional machine tool equipment will be purchased for the present.

The plant of the Damascus Brake Beam Company at Sharon, Pa., was almost entirely destroyed by fire July 23. The company has not yet decided on its future plans, but may decide to build a new plant in Cleveland, where its headquarters are located.

It is reported from Akron, Ohio, that the McNeil Boiler Company of that place will be obliged, in consequence of the pressure of business offering, to extend its present facilities. An additional force of men is to be put on at once.

The Morgan Engineering Company, Alliance, Ohio, will furnish an electric traveling crane of 140 tons capacity for the shops of the National Transcontinental Railway, Winnipeg, Man., contracts for the equipment of which are now being placed under the supervision of the Dominion authorities.

Cincinnati

CINCINNATI, OHIO, July 26, 1910.

It is reported that some good sized inquiries have been received by the local machine tool people from the Pennsylvania Lines West, the Baltimore & Ohio Southwestern and the Louisville & Nashville Railroads. The Chicago, Burlington & Quincy is understood to have lately bought some tools on a list issued sometime ago, and the New York Central has also made some additional purchases. This is encouraging, and it is the general opinion that no matter how hard the railroad heads may hold back on financial estimates the time has arrived when the mechanical and operating departments must be supported in obtaining equipment if the railroads are to live up to operating standards already set.

Some of the foundries are very busy, while others claim there has been a slackening up. The second-hand machinery houses are meeting with about the same conditions, although those fitted up with repair shops state that business is in a very healthy condition as far as they are concerned.

The machinery exhibits will be very extensive at the Ohio

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Valley Exposition, which will be held in Cincinnati August 29 to September 24. Practically all available space in the machinery hall has been contracted for, and much interest is shown in the enterprise, both by the local and some of the outside machinery interests. As the exposition will be held at the commencement of the usual buying season of the year, it is expected that a large number of orders will be booked by visiting purchasers of machine tools and other equipment.

The Webb Coal Mining Company is a new Ohio incorporation with $100,000 capital stock and will develop coal lands in Kanawha County, W. Va. Work has already been started on two drift entries and the company hopes to be shipping coal by December 1. The power plant machinery has been purchased, but a hoist and other coal mining equipment will be needed. The main office of the company is at 702 Mercantile Library Building, Cincinnati. Lewis M. Webb is president and treasurer; E. H. Shonk, vice-president; B. R. Appleton, secretary, and John Holmes of Garrison, W. Va., general manager.

The Isaac Joseph Iron Company, 525 Hunt street, Cincinnati, has acquired a tract of land adjoining its plant on which will be erected an addition at some time in the future. Building plans have not yet been made up.

The Webster & Perkins Tool Company, manufacturer of automatic bolt threading machinery, &c., which has been in business at Springfield, Ohio, for some time, has incorporated, with $25,000 capital stock. No immediate improvements are contemplated as the company has recently doubled its capacity, but it is its intention at no distant date to erect a new factory for which equipment adapted to its particular needs will be required. H. Voges, Jr., is president and treasurer.

The William Powell Company, Cincinnati, manufacturer of valves and other engineering specialties, is making quite a success of its Spanish-American business. It has adopted the policy of sending its own Spanish speaking representative to create a demand for its goods and to get personally acquainted with the trade in question.

Mowbray & Robinson, 1219 West Sixth street, Cincinnati, have purchased a tract of land in Breathitt County, Ky., on which is about 100,000,000 ft. of white oak timber. They are working on plans for building a band mill of 75,000 to 100,000 ft. daily capacity near Jackson, Ky. Part of the necessary equipment has already been contracted for.

The Newport Rolling Mill, Newport, Ky., which has been shut down three weeks for the usual midsummer repairs, started up half of its plant July 25, and the company hopes to have the balance of the mill ready for operation by August 1. The demand for black and galvanized sheets, roofing, siding, &c., is very encouraging and a busy fall season is anticipated.

The Miller Improved Gas Engine Company, Springfield, Ohio, was awarded contract by the Board of Control, Norwood, Ohio, a Cincinnati suburb, for one 300-hp. gas engine. The company's bid was $7835 for the engine installed in the water works and light plant.

R. Rost, maker of carriage woodworking machinery, Cincinnati, has awarded contract to the Roche-Bruner Building Company, Johnston Building, this city, for a factory building 50 x 57 ft., which will be erected at the intersection of Gest street and Mill Creek.

The cooperage factory of L. Haehnle & Sons, McMicken avenue and Eliza street, Cincinnati, was almost totally destroyed by fire July 23. A lot of valuable machinery was ruined. The estimated loss is $25,000, covered by insurance. It is stated rebuilding plans are already under way.

Among the busy factories at Oakley suburb is that of the Triumph Electric Company, which is running on full time. While there has been a recent decrease in the number of orders received for larger electrical units, which is usual at this time of the year, the company's small business is holding up reasonably well.

The pattern storage room to be erected by the Lodge & Shipley Machine Tool Company, Cincinnati, will be a fireproof building 30 x 100 ft., of brick and concrete construction. A covered passageway will connect it with the company's pattern shop.

The Ryder Brass Foundry, Bucyrus, Ohio, is busy installing equipment in its new building and expects to be in operation by August 1.

The Wapakoneta Wheel Company has been organized at Wapakoneta, Ohio, and will construct a brick factory building having 37,000 sq. ft. of floor space. The officers are Edwin Abe, president; C. T. Kolter, vice-president. L. N. Blume, treasurer; John Taeusch, secretary, and E. Trau, general manager.

The Vulcan Plow Company, Evansville, Ind., has increased its capital stock from $150,000 to $400,000. Extensive improvements are contemplated at its plant, including the erection of a new foundry building at Ingle and Second streets on a site now occupied by the storage warehouses of the company.

Work has commenced on the foundations for the new factory of the Angldile Scale Company, Elkhart, Ind. The main building will be 120 x 507 ft., one story, with a portion of the front 35 x 120 ft., two stories. The plant is located on Elkhart avenue, near the C. G. Conn Company factory.

The customs foundry department of the Dean Gas Engine & Foundry Company is very busy, and the company also reports a rapidly increasing demand for Fox four-port two-cycle gasoline motors, of which it is the patentee and manufacturer.

The new manufacturing plant to be erected at Geneva, Ohio, by the American Fork & Hoe Company will be 50 x 230 ft.

The International Harvester Company will shortly proceed with the erection of one-story buildings 150 x 700 ft. and 150 x 350 ft., together with several smaller structures, at Springfield, Ohio.

The Foos Gas Engine Company, Springfield, Ohio, is operating its plant with full day and night shifts in order to keep up with bookings, prompt deliveries having been one of the chief factors in building up its present large trade.

The Commercial Car Company, Indianapolis, Ind., has increased its capital stock from $100,000 to $500,000, and has purchased a site in that city on South Meridan street and the Belt Railroad. It is the intention of the company hereafter to manufacture its own engines and transmission and other parts used in the construction of its cars.

The National Pottery Company, Evansville, Ind., will break ground within the next 30 days for a four-kiln pottery plant, details of which have not been worked out as yet.

The Jeffrey Mfg. Company, Columbus, Ohio, is changing the location of its Denver office from 1711 Tremont place and after August 1 will occupy a commodious suite of rooms in the First National Bank Building. This company, besides maintaining a large selling force in over a dozen of the leading cities of this country, maintains a corps of engineers at its branch offices situated in the following cities: Chicago, St. Louis, Denver, Montreal, Pittsburgh, Charleston, W. Va.; Boston, New York and Birmingham. There are also nearly 100 Jeffrey agencies in additional cities in this country and abroad.

The Ross Gear & Tool Company, Lafayette, Ind., has increased its capital stock from $50,000 to $100,000.

The S. G. Taylor Chain Company, Maxwell, Ind., has resumed operations after a brief shutdown. The company has orders that will tax its capacity.

The Huntington Wagon Company, Huntington, Ind., has let contracts for two new buildings, a paint shop 54 x 146 ft. and a blacksmith shop 41 x 146 ft., both of brick.

The Fudge Bros. Mfg. Company, Marion, Ind., has been incorporated, with $25,000 capital stock, to manufacture automobile tires. The directors are John W. Fudge, Leroy M. Fudge and Lewis M. Fudge.

The American Spark Arrester Company has been organized at Indianapolis, Ind., with $100,000 capital stock, to manufacture spark arresters for locomotives and other steam engines. The directors are Thomas A. Van Horn, Charles A. McCotter, Harry N. Knight, Charles F. Remy, James W. Sale, Elmer E. Perry and Vernon E. Butler.

Purdue University, Lafayette, Ind., has been testing the device for two weeks on a Chicago & Northwestern large freight locomotive taken from service on the road and loaned for the purpose. There is a new design and arrangement of the smoke box which catches the sparks and prevents them going out of the smokestack. Prof. Louis E. Endsley of the university has charge of the tests.

The Indianapolis Switch & Frog Company, Indianapolis, Ind., has decreased its capital stock to $200,000. N. H. Fairbanks is president of the company.

The Acorn Boiler Compound Company, Evansville, Ind., has been incorporated, with $10,000 capital stock, to manufacture boiler compounds. The directors are William W. Pinder, William J. Muensterman and Julius Muensterman.

The Peerless Wire Goods Company, Lafayette, Ind., has been incorporated, with $10,000 capital stock, to manufacture wire goods. The directors are Edward R. Clegg, Elbert Jackson and Ernest Schilling.

The Stutz Auto Parts Company, Indianapolis, Ind., has increased its capital stock from $10,000 to $50,000.

The Fletcher Enamel Company, Anderson, Ind., is enlarging its plant by the addition of two muffle furnaces, which will be completed by August 1, and the installation of three or four additional pieces of machinery which it is understood have not been purchased. The company is also contemplating the erection of a building to contain from 15,000 to 20,000 sq. ft. of floor space, the latter part of this year, to be used for its finished product.

The Premier Motor Mfg. Company, Indianapolis, Ind., has under course of construction several buildings which will almost double its present floor space. These buildings are being erected on ground recently purchased by the company opposite its present site, and consist of a motor test shop 50 x 150 ft., a machine shop 90 x 490 ft., one story, of saw

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tooth roof construction; stockroom 50 x 100 ft. and a repair shop.

The Overland Automobile Company, Indianapolis, Ind., is erecting a concrete building, at a cost of $60,000, to increase the capacity of its motor department, into which will be installed more than $40,000 worth of new machinery. Plans for an increase in the capital stock of the company from $2,800,000 to $6,000,000 and for a consolidation of the Indiana and Ohio corporations will be considered by the directors of the company at a meeting in Toledo this week. It is understood that a large portion of the proposed increase will be used for further improvements at the Indianapolis plant.

Detroit

DETROIT, MICH., July 26, 1910.

For the past week there has been a good deal of buying of miscellaneous equipment, including some forge and machine shop tools, in behalf of new automobile plants that are being located at Michigan, Ohio and Indiana points outside of the Detroit district; and quite an appreciable percentage of this trade is of a nature that marks it as but the forerunner of more important purchasing a few weeks later on. Following inventory taking, the larger manufacturing plants are also making up lists of their probable requirements for the next few months.

Plans for new buildings to be erected by automobile companies and others engaged in metal working or the production of machinery of various kinds have absorbed the attention of the trade to such an extent that the enormous increase in other forms of manufacturing, such as those that have to do with household articles, small appliances used in buildings, hardware, toys, clothing, knit goods, &c., have been largely overlooked. Some dealers, however, have made a specialty of following up the requirements of light manufacturing plants, and they are securing a very satisfactory line of business from them. One concern that sells motors and electrical devices exclusively has met with a phenomenal growth in the demand for apparatus of that kind, in capacities from 1 to 20 hp. up to an ordinary maximum of 10 to 15 hp. where individual drive is used. For light shafting, to which several machines are belted, the sizes may run somewhat higher; but the popularity of the small motor is increasingly manifest. This is notably true of mills and factories where women and girls are principally employed.

The Nielsen Motor Company, Detroit, has awarded the contracts for building a two-story automobile factory 50 x 80 ft. The machinery to be installed has been largely purchased. Some buying on this account will be done later.

The extremely heavy demand this summer for gasoline engines to be placed in motor boats and launches has been very noticeable at some of the plants in this vicinity. Among others, the Strelinger Marine Engine Company, which builds these machines in sizes from the smallest to the largest ordinarily used, together with accessories, has found its manufacturing facilities severely taxed to fill orders promptly. Shop expansion will be the probable result. The company's plant in Detroit is located on East Congress street.

The main building of the manufacturing plant to be constructed in Alpena, Mich., by the Alpena Motor Car Company will be 40 x 170 ft., with two wings, each 60 x 200 ft. The equipment needed is now being arranged for.

The Michigan Marble Company, Detroit, is installing machinery and will open a quarry at Ishpeming, Mich. Later some additional equipment will be required. The company has increased its working capital to $100,000.

The Packard Motor Company, Detroit, is adding to the force in its forging department, the facilities of which have also been increased.

The Sun Stove Company, Detroit, which operates a brass foundry and machine shop as a part of its plant, is making a specialty this season of custom work, particularly on a contract basis.

Ground for new building will be broken soon on a tract of 40 acres which the Metzger Motor Car Company has acquired in Detroit for its new motor truck plant.

The Port Huron Bridge & Iron Company, Port Huron, Mich., has a large amount of work on hand at this time. Among recent orders is one for building two bridges at Bourrett, Mich.

The new factory building to be erected in Detroit by the Van Dyke Motor Company will be 60 x 600 ft. Construction contracts have not yet been let, but a part of the machinery required has already been decided upon.

An increase in its capital stock has been made by the Sibley Motor Car Company, Detroit, in order to provide for necessary additional manufacturing facilities.

A crushing plant and cut stone works, equipped with modern machinery, will be installed by the Ohio Oolitic Stone Company, recently organized with headquarters at Bloomington, Ind., the president of which is Wm. W. Dodgson, Dayton, Ohio. A new quarry will be opened and equipped by fall. The machinery will include apparatus for the production and application of both pneumatic and electric power.

Considerable interest is being taken by representatives of equipment houses in the project for building the Hamilton, Waterloo & Guelph Railway, whose organization headquarters have been at Hamilton, Ont. Some time ago Westinghouse, Church, Kerr & Company made an investigation of this undertaking, and it is generally understood that a favorable report was prepared. Unless hydroelectric power is available, steam turbine units will undoubtedly be utilized for the service.

The Midland Machine Company, Detroit, has kept fully occupied this season in the manufacture of special tools, jigs, &c., as well as machinery parts.

One of the busiest manufacturing plants in this section for some time past has been that of the Kerr Machinery & Supply Company, Detroit, whose steam turbines and centrifugal pumping units are now in service throughout the United States as well as in foreign countries. One of the uses to which turbines of the smaller sizes are now being extensively put is in driving dynamos for exciting the fields of large alternating current generators.

The Wilson-Robinson Mfg. Company, Detroit, has been largely occupied within the last few months in supplying the automobile trade on contracts, its output including brass, bronze and aluminum castings in considerable variety.

The Weber Detroit Mfg. Company, Detroit, which does a large business in model making, has also had in hand during the spring and early summer a great deal of experimental work for manufacturers and inventors of machinery parts, particularly those of an automatic or semi-automatic character used in the automobile and related industries.

Construction will soon begin of the frame work for a three-story factory 70 x 100 ft. to be erected by the Detroit Carriage Company, Detroit, which it is stated will be used for the production of parts used in the manufacture of motor vehicles.

The Michigan Pattern Works, Detroit, which executes orders in both wood and metal, is deriving a very profitable line of business from the automobile companies, both of this vicinity and elsewhere in the country. By another year the plant will be enlarged and more extensively equipped.

E. J. Kruce & Co., 243 Lafayette avenue, Detroit, are building a new three-story machine shop, 50 x 150 ft.

W. B. Mershon, Saginaw, Mich., one of the most prominent of the heavy machinery builders of the State, has been elected president of the newly organized water works board at that place. The business of his firm continues very active. For one plant, recently, nine of the resaws which it manufactures were ordered, and numerous smaller installations are being made in all parts of the United States and Canada.

The Virn Motor Mfg. Company, Sandusky, Ohio, is arranging for the construction of a factory building 60 x 130 ft.

The J. E. Bolles Iron & Wire Works, Detroit, is having a very brisk trade in supplying wrought and cast iron work of all kinds for building purposes, together with various fabricated material. The outlook for autumn business could hardly be better.

The Argo Electric Vehicle Company, Saginaw, Mich., has filed articles of incorporation with a capital stock of $200,000; the incorporators are Theodore Huss, Fred Buck, Benton Hanchett and Otto Schupp of Saginaw, and A. M. Marshall of Duluth, Minn. The company will occupy the building now being vacated by the Sommers Match Company of that city, which it will fit up for the manufacture of electric pleasure vehicles. Mr. Huss is secretary of the Lufkin Rule Company of Saginaw.

The Muskegon Motor Specialties Company, Muskegon, Mich., has broken ground for a machine shop, 119 x 155 ft., and a furnace room, 50 x 80 ft. The buildings will be of brick construction, one-story, and are expected to be ready for occupancy by October 1.

St. Louis

ST. LOUIS, July 25, 1910.

The introduction of new factories and the enlargement of old plants, either at their present sites or in new localities, is making a demand for additional new machinery in St. Louis. All the home manufacturers and the branch offices report business ranging from fair to excellent. The leading house in railroad supplies states that for the first half of the year it was very busy in some of its specialties,

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but the demand for the present month is not so brisk. Reports referred to above cover the country at large in the case of some companies, while others mention St. Louis and St. Louis territory. The local machine tool houses are carrying a good assortment of stock.

The Century Electric Company, maker of single phase A. C. motors, is very busy, and has been adding new equipment steadily for the past year.

The Alex. Kirkpatrick & Sons Foundry Company has put its plant in running order after the disastrous fire suffered recently, and is now in the market for an electric traveling crane.

The Kupferle Foundry Company has moved into its new plant at Main and Wright streets.

The St. Louis Malleable Casting Company is quite busy, and a heavy tonnage is being got out for some large implement manufacturers and others.

Work has begun on the foundation for the new plant of Fayette R. Plumb, Inc., manufacturer of hardware and special tools.

The district office of the Hamilton-Corliss Engine Company reports a good number of sales. Among these are a 1500 hp. tandem compound unit for the Southwestern Knitting Company, Kansas City; an 800 hp. outfit for the Mt. Vernon Car Mfg. Company, Mt. Vernon, Ill.; a large Hamilton cross compound Corliss engine for the Board of Public Works, Hannibal, Mo.; an installation at the plant of the N. O. Nelson Mfg. Company, Le Claire, Ill.; a 1500 hp. cross compound Corliss engine, direct connected through generator, for the terminal power house at Venice, Ill., of the Illinois Traction System, preparatory to its entrance to St. Louis over the company's new bridge across the Mississippi River.

The Heine Safety Boiler Company reports an excellent demand for its safety boiler, which is coming from a territory embraced by both coasts and is taxing the large facilities of the new plant.

The Handlan-Buck Mfg. Company states that the demand for some of its new railroad specialties has been very satisfactory; for example, the ventilation apparatus for switch lamps, a new style lantern. There is also a good demand for automobile spring washers. While the call for railroad specialties up to July 1 was remarkably good, it has slackened up, doubtless temporarily, since that date.

The Ingersoll-Rand Drill Company reports a very fair demand from the district covered by the St. Louis office.

The St. Louis Architectural Iron Company is quite busy on structural fabricating; in fact, needs more men for jobs under contract.

The Hall's Patent Tool Company, St. Louis, has been incorporated; capital stock, $50,000; incorporators, James G. Hall, O'Fallen, Ill.; Joseph A. Sauls, Bessie Sauls, Philip Wagner and others; to engage in manufacturing tools, &c.

The Neverbreak Wrench Company, St. Louis, has been incorporated; capital stock $2000; incorporators, A. U. Oge, Adolph Nierhoff and S. F. Raab.

The Pittsburgh Plate Glass Company, at Crystal City, Mo., is increasing its plant by the addition of a large steel frame building at the east side of the St. Louis & San Francisco Railroad tracks.

The Central Steel Company, Ottawa, Ill., has been incorporated; capital stock, $10,000; incorporators, Fred L. Fisher, Louise P. Fisher and Benj. D. Wood.

The Hermann Ice Mfg. Company, St. Louis, has been incorporated; capital stock, $25,000; incorporators, William Hermann, Josephine C. and Joseph Hermann.

The Ringen Stove Company is erecting at Kingshighway and Daggett avenue, St. Louis, a new plant to cost upward of $500,000. The buildings will be one and two stories, the floor space of which is approximately 22,000 sq. ft. The factory will front on 2500 ft. of switching tracks. The daily output will be 1500 stoves and 800 hands will be employed.

Millard Bryan is equipping and developing a new quarry in the vicinity of Carthage, Mo. When the new transmission line of the Empire District Electric Company reaches Carthage, this and other quarries will be operated by electric power.

Steam turbine generating sets have been ordered for the new municipal electric plant at Little Rock, Ark.

The Fairfax Light, Heat & Power Company has been organized at Fairfax, Mo., to establish an electric plant for public service.

The Nevada Water, Light & Traction Company has been organized at Nevada, Mo., by Edward Willard and others to establish a public service plant. The purchase of the necessary machinery has not yet been considered.

The planing mill at St. Joseph, Mo., owned by Willis R. Munger, will be disposed of to other interests and possibly enlarged. It is electrically operated.

New England

BOSTON, MASS., July 26, 1910.

The week is featured by the announcement of the establishment of the C. W. Kelsey Company, Hartford, Conn., which will equip works immediately for the manufacture of a very low price motor car; and of the action of the Providence Engineering Works, Providence, R. I., in its decision to go ahead with a large addition. Its inquiries in the trade indicate large purchases of machine tools, but the dealers have not received a list as yet. The C. W. Kelsey Company will also be a factor in the market in the near future, but its president, C. W. Kelsey, states that no list has been prepared. The equipment required will be a complete one.

Apart from these promising influences the trade is uneventful, with a few good orders. The average indicates a lull in buying, which is to be expected, considering the season and the weather. Salesmen report that never in their experience have so many buyers been absent from their offices at this period of the summer. The strike on the Grand Trunk Railroad is affecting shipments to some extent. The various labor troubles are gradually clearing away. The drought is reducing the efficiency of water power installations throughout New England, including that of the Connecticut River Power Company, some of whose customers have been compelled to fall back on their steam plants. The Worcester Works of the American Steel & Wire Company are affected by this dearth of current, but the Connecticut River people are still able to furnish power for the electric steel furnace at the South Works.

A strongly backed corporation, the C. W. Kelsey Company, has leased the factory at Hartford, Conn., recently operated by Cheney Bros., silk manufacturers, and will occupy it for the building of a low priced motor car to be called the Motorette, which will sell for from $330 to $360. The work of remodelling and equipping the premises will begin immediately. No machinery has been purchased; no list of equipment has been prepared. While production will be on a considerable scale, the beginning will be a conservative one, the company proposing to feel its way before proceeding on a really large basis. Several hundred men will be employed as soon as manufacturing is under way. The capital stock is $250,000. C. W. Kelsey, Hartford, formerly with the Maxwell-Briscoe Company, is the president; W. D. Disston, Henry Disston & Sons Company, Philadelphia, vice-president; James W. Robbins, New York, secretary, and M. Kelsey, Hartford, treasurer. E. D. Freeman, general counsel for the Union Tea Company, is a director. F. S. Hyatt, formerly with the Columbia Motor Car Company, Hartford, is the purchasing agent, and G. F. Kuhn, for many years with the German house of Seaman-Halsky, and an engineer of the Maxwell-Briscoe Company, is the engineer. The Cheney plant is a large one, and several acres of land will permit of large increase in manufacturing space when it is required. The initial cars of the company were built under contract by outside parties.

The detailed plans of the Providence Engineering Works are not yet announced, but there is good authority for the statement that the large addition will be built very soon, on land adjacent to the present buildings. Under the new ownership of the United States Motor Company the operations of the plant will be on a much larger scale, particularly on the automobile end, which manufactures engines and transmissions in connection with the Maxwell-Briscoe Motor Car Company, whose works are located in the neighboring village of Auburn, R. I. The Rice & Sargent engine will continue a product of the business, and doubtless there will be some development on the steam engine department of the business. The new building will have a large amount of new equipment, which will be devoted to the manufacture of automobile parts.

The public spirit prevailing in some of the New England towns is exemplified by an offer of the Electric Light and Power Department of the Goodell Company, Antrim, N. H., manufacturer of cutlery and hardware. A circular letter states that any new manufacturing establishment recommended by the local board of trade which will employ not less than 10 people will be furnished electric current for power, not to exceed 50 hp., free until September 1, 1911, and for five years from that date power at a rate 10 per cent. less than companies furnishing electric power in New Hampshire. The offer includes the installation of a transformer.

The superintendent of the Boston State Hospital at Mattapan, Mass., states that an entire new equipment of machine tools and woodworking machinery will be required in connection with large additions to the institution buildings, which will include spacious shops, but no list has been prepared to date.

The Aroostook Electric Railway will extend its system

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through the towns of Woodland and Perham to Madawaska Lake, a distance of 19 miles, opening up one of the most fertile sections of Maine.

The addition to the shops of the Lapointe Machine Company, Hudson, Mass., will be 36 x 68 ft., three stories. The new space will be devoted to the manufacture of reamers and will be ready for occupancy about September 1.

The new corporation which will manufacture the Orson motor car at Springfield, Mass., has been named the Brightwood Motor Mfg. Company.

The Novelty Mfg. Company, Waterbury, Conn., manufacturer of brass goods, has increased its capital stock from $12,500 to $200,000.

The Terry Steam Turbine Company, Hartford, Conn., manufacturer of steam turbines, has increased its capital stock to $196,500, the proceeds of 218 new shares having been devoted to the purchase of machinery.

The great number of concerns of this territory making automobile parts and accessories will have a prosperous year, in fact will be pushed to their utmost capacity, if the estimate of next year's production of cars is fulfilled. The figure quoted is 300,000, as compared with 210,000 for the current year and 82,000 for 1909. Under present conditions it is difficult to find an establishment serving this trade which is able to keep up with orders accepted, and which has not been compelled to discourage new business. With an increase of 50 per cent. in the demand for their products it will be necessary to increase producing power very materially, which should make the industry an even more important factor in the market for equipment, including machine tools, and for supplies.

Strikes of molders and coremakers are on in several of the foundries of Hartford, Conn., but the owners are making rapid gains in filling the vacant places.

The aeroplane is exciting interest in machinery and supply circles because of the plans of several companies to create plants in New England for the manufacture of the machines and their parts and accessories. W. Starling Burgess, Marblehead, Mass., is forming a company, which proposes to establish works for the building of aeroplanes at Newburyport, Mass. Hugo C. Gibson, New York, is interesting Hartford capital in a company which will manufacture aeroplane gas engines and propellers. A meeting to forward the project was held recently at the office of E. C. Frisbie, Hartford. The Gallaudet Engineering Company, Norwich, Conn., has been incorporated under Connecticut laws, with capital stock of $100,000, to build a new type of aeroplane. The promoters are E. F. Gallaudet, Denison Gallaudet and Grosvenor Ely, all of Norwich. Various New England manufacturers are already producing parts of machines, including motors.

The trade, particularly the supply end, is interested in the impending consolidation of worsted mills, which include those of the Waterhouse Worsted Company, Providence, R. I.; Fred L. Sayles and A. L. Sayles & Son, Pascoag, R. I., and others at Warren, Mass.; Utica and Syracuse, N. Y., and Philadelphia. A corporation is organizing to take over these industries, with capital stock reported to be $25,000,000.

The latest step in the shoe machinery situation is a suit brought by the United Shoe Machinery Company, Beverly, Mass., against the Thomas G. Plant Company and Thomas G. Plant as an individual, alleging a breach of the lease under which the Plant factory was equipped with the plaintiff's machinery. Mr. Plant is head of the Wonder Worker Shoe Machinery Company, which proposed to put a full line of shoe machinery on the market in competition with the United Shoe Machinery Company. The litigation is considered to be of vital importance, not only in its direct results upon the machinery lease, but as involving questions of patent rights.

Geo. H. Booth, New Bedford, Mass., is organizing a company for the manufacture of cotton goods. The corporation will have a capital stock of $1,250,000, and will build a great plant, which will require large power, as well as the usual great amount of transmission equipment and general supplies and a modern machine shop, if present plans are consummated.

The new power plant of the Worcester Consolidated Street Railway Company, Worcester, Mass., to be located in the adjacent town of Millbury, will have a generating capacity of 5000 kw.

The city of Lynn, Mass., will establish a filtration plant for its water supply, to cost between $300,000 and $400,000. A new water filtration plant at Bangor, Me., will cost $66,200.

Whipple & Choate, Bridgeport, Conn., will erect a three-story addition to their pattern building, 30 x 40 ft., for which no equipment will be required.

Harry B. Ingraham has been made manager of the Fay Welding Company, South Boston, which does oxy-acetylene welding of iron, steel, cast iron and other metals.

Industrial extensions and new works planned for New England include the following: Rostand Mfg. Company, Milford, Conn., brick mill building 40 x 103 ft., one story; New England Brick Company, plant at Farmington, Conn., to cost $40,000, with a capacity of from 40,000 to 50,000 bricks; Louis M. Kenny and Alonzo M. Bates, Leominster, Mass., comb factory, 24 x 60 ft., two stories, with fireproof power house for steam equipment; Aroostook Lumber Company, Presque Isle, Maine, starch factory with capacity of 1000 barrels a day; Attawaugan Company, Killingly, Conn., steam electric unit of 700 hp.; Brass Products Company, Southington, Conn., addition 30 x 80 ft., two stories; Giron Bros. & Co., St. Etienne, France, velvet ribbons, plant at Norwich, Conn., 100 x 140 ft., with sawtooth roof; A. H. Berry Shoe Company, Portland, Maine, factory 50 x 150 ft., three stories.

The Providence Engineering Works has issued a long list of machine tools on which the New England trade is now bidding. The company has arranged to erect a new building for the manufacture of automobile parts, and it is in this structure that the machinery to be bought will be installed. Work on the new plant will be begun immediately.

Milwaukee

MILWAUKEE, WIS., July 25, 1910.

The market for machinery is steady at present, with no features of especial interest. It cannot, however, be characterized as dull. Orders continue to come in quite freely from various parts of the United States and Canada, and there is an excellent trade with Mexico in power, mining and crushing machinery.

Export business has also been quite brisk lately. Owing to the large and varied line of machinery which it manufactures, the Allis-Chalmers Company is, of course, the most prominent in this line of any local industry. At present it is engaged in filling two orders for copper plants which are of considerable interest from the fact that they represent the extremes of the earth. One comprises equipment for immense reduction works to be installed by the Compania Minera du Haut Kantanga, Brussels, Belgium, near the shore of Lake Tanganyika in south central Africa, and the other is for concentration works of the Finnish American Copper Company, Helsingfors, Finland. In both contracts are included the complete power and electrical equipment. Other machinery, including steam stamps, will be sent to the ore mill of the Pan American Mining Company in Dutch Guiana, S. A.

In the line of shop and foundry equipment there has been no change from the situation recently reported.

The Optenberg Iron Works, Sheboygan, Wis., has the contract for the iron work of the S. W. Miller Piano Company's new factory at that place, which will be three stories, 60 x 185 ft.

The project for a municipal electric plant at La Crosse, Wis., will be brought up again this fall. A bond issue to provide funds for the purpose is to be voted on in September.

The city of Columbus, Wis., has engaged Vaughn & Meyer, Milwaukee, to prepare plans for remodeling the municipal electric plant and improving the service.

The West Allis Iron Works Company has been organized by Henry Biegel and Alois Hartl, together with Henry Schauten. Mr. Biegel is in charge of the foundry of the West Allis works of Allis-Chalmers Company, and Mr. Hartl is an assistant superintendent in the erecting department. A site for a plant is understood to have been secured, but it will not be constructed at present, as the plans of the company do not appear to have been fully matured. No machinery will be needed this year.

The manufacturing plant of the Chippewa Falls Chair Company, Chippewa Falls, Wis., which recently burned, will probably not be rebuilt.

The Smalley Mfg. Company, Manitowoc, Wis., is having plans drawn for a three-story addition to its plant. The new building, 80 x 300 ft., will be used for foundry, metal and wood working shops.

The Manitowoc Electric Light Company, Manitowoc, Wis., which has a power plant equipped with General Electric generators of 500 kw., will add a new unit of 100 kw. built in the West Allis shops of Allis-Chalmers Company to furnish the increase in current demanded by an extension of its system.

Ore docks will probably not be built by the Minneapolis, St. Paul & Sault Ste. Marie Railway at Superior, Wis., as originally contemplated. A new site near the Great Northern docks at Allouez is under consideration. The purchase of a large quantity of handling machinery will be involved.

A portion of the plant of the Globe Foundry & Machine Company, Sheboygan, Wis., was recently destroyed by fire. It will be rebuilt and the capacity somewhat extended.

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The Koehring Machine Company, Milwaukee, has increased its capital stock to $100,000.

Plans for a pumping plant and water works system are under consideration at Kendall, Wis.

An addition 50 x 100 ft. is to be made to the factory of the Vudor Porch Shade Company, Janesville, Wis. Some light equipment may be needed.

The Bradley Iron Works, Milwaukee, has been incorporated for $25,000 by J. A. Wallis, August Moeller and H. C. Mullen.

The Brodesser Motor Truck Company, Milwaukee, is receiving bids on power equipment for its new factory at Juneau, Wis. The equipment has, however, been practically decided upon.

The Ritter Automobile Company has been organized at Madison, Wis., by Henry R. Ritter and others.

The Worden-Allen Company, Milwaukee, has been awarded the structural contract on the new four-story building, 70 x 200 ft., to be erected by the Kimberley-Clark Company, Kimberley, Wis.

Ground has been broken at Fort Atkinson, Wis., for a new enameling shop to be erected by the Cornish, Curtis & Greene Company. It will not be of very large proportions.

A two-story and basement factory building is to be erected in Dodgeville, Wis., by the New Stratman Vehicle Company. It will be 40 x 200 ft., probably of brick and steel construction.

Plans are reported to be in preparation for a new factory building to be erected by the Harvey Spring Company, Racine, Wis.

The plant of the Vulcan Iron & Steel Works, Milwaukee, has been purchased at a bankruptcy sale by Bernhard Becker.

W. G. Kirchoffer, Madison, Wis., is in charge of plans for a new pumping plant and water works system at Bessemer, Mich.

It is announced that a municipal repair shop, to combine the present shops of the various departments, will be established in the near future by the city of Milwaukee. The site will be on the river, so that boilers and machinery from the fire boats may be readily handled. All heavy machinery is to be on the first floor, and the shop will be laid out in such a way as to permit of indefinite expansion. The equipment will cover foundry, forge, machine and carpenter work. Aside from repairs, the intention is to have the city build much of the apparatus which it uses. This is done to some extent at present by the fire department.

The Prime Steel Company, Milwaukee, has filed an amendment to its articles of incorporation, increasing the capital stock to $500,000.

The largest building fee ever taken by the city has just been paid in connection with the new foundry of the International Harvester Company, which will be in point of ground area the largest manufacturing building in Milwaukee, viz., 237 x 781 ft. The plans call for a four-story structure.

The Milwaukee Stove Works has been bought by John A. McCormick, an attorney, in the interest of creditors.

The Knight Power Company, Provo, Utah, in ordering two hydraulic turbines of 1630 hp. each, from Allis-Chalmers Company, Milwaukee, have specified bronze runners for one and cast iron runners for the other, in order to ascertain the results obtainable in wear and efficiency from the two metals under the conditions of service at its plant. Another interesting feature is that the turbines will not be provided with governors. A regulating cylinder operated by the penstock pressure, and subject either to electrical control from the switchboard or mechanical control from the turbine, will be ordinarily used, but in case of emergency a direct mechanical gear can be operated. The turbines will operate under a head of 170 ft. at 514 rev. per min.

Among recent installations in the Southwest made by the Nordberg Mfg. Company, Milwaukee, is one of a large hoisting engine at the Old Dominion mine in Globe, Ariz., where it will replace two smaller hoists built by the Wellman-Seaver-Morgan Company. In the same vicinity there will also be placed in service this fall for the Desert Power Company, Kingman, Ariz., a cross-compound, heavy-duty engine driving an alternating current generator of 1000 kw., both of which were ordered from the Nordberg company.

The J. I. Case Threshing Machine Company, Racine, Wis., advises it will commence work on the operation of its new foundry 200 x 800 ft., this fall.

The Badger Foundry Company, Racine, Wis., is building a steel and brick foundry.

The Globe Foundry & Machine Company, Sheboygan, Wis., advises in regard to its recent fire, its loss was about $6000 on its warehouse and stock. The company expects to be able in a few days to take care of its trade.

The Wisconsin Foundry & Machine Company, Madison, Wis., recently incorporated with a capital stock of $60,000, has taken over the plant and business of the King & Walker Company of that city, manufacturer of the Monona leverless series of cylinder presses. It is the intention of the company to continue the manufacture of these presses and conduct a general foundry and machine shop business and act as manufacturers' agent for steam fitters' supplies. A new shop, 60 x 132 ft., will be erected, but details of the equipment have not been decided upon.

The Wisconsin Engine Company, Corliss, Wis., has installed one of its "higher speed" Corliss engines in the new factory of the Weinbrenner Shoe Company, Milwaukee, Wis. The engine will develop 300 to 450 hp. and drives a 200-kw. generator at 150 rev. per min. The flywheel is but 11 ft. in diameter, and the whole unit occupies very little space for one of its capacity.

The South

NEW ORLEANS, LA., July 25, 1910.

Trade in all of the Gulf States has been exceptionally good of late, although it is, of course, not nearly as brisk as it was during the late winter and beginning of spring. Oil producers and refiners are contributing quite freely to the present activity in equipment and supplies, and this business is moving more to the eastward than formerly. The same is true of natural gas, which is providing cheap fuel for local industries. About 25 miles north of Shreveport, La., there has been developed an oil and gas field of very promising proportions, both in respect to the total area and to the flow from the wells thus far drilled. Various private reclamation projects, involving drainage, pumping, &c., are also bringing in a steady run of small orders, although most of the buying for large projects is practically over for the season. The saw mill, rice and flour mill and sugar mill trade runs chiefly to repair work at present, with some replacements and extensions of equipment. Fabricated metal of all kinds, including bridge and structural material, is in fairly steady demand, a good many contracts being still pending.

A prominent feature of local trade is the business being done by export houses in machinery and supplies for transhipment to Central and South America and the islands of the Caribbean Sea. For the first half of the year this increased fully 20 per cent. over that of any previous season, and for many lines that figure would be regarded as a very conservative estimate. With better steamship communications, and particularly after the opening of the Panama Canal, the trade will grow steadily in importance.

Work is about to begin on the addition to the power plant of the Knoxville Railway & Light Company, Knoxville, Tenn. In this there will be installed a new steam turbine set of 3000 kw., together with auxiliary apparatus, some of which is to be purchased later.

The Southern Iron & Equipment Company, Atlanta, Ga., has rebuilt for service, or put in good operating condition, a large number of locomotives used on industrial railroads and in construction work, both for narrow and standard gauge, up to 75 tons weight. A heavy stock is carried at the company's plant in Atlanta, Ga.

Contracts for electrical machinery with which to equip its new plant were recently placed with manufacturers by the Birmingham Rail & Locomotive Company, Birmingham, Ala. Some further purchases on this account, particularly of motors, controllers, &c., will probably be made in the fall.

The construction of a pumping plant of moderate capacity, with complete water supply system, is under consideration at Talbottom, Ga.

The Goulds Mfg. Company, Seneca Falls, N. Y., through its district representatives in New Orleans, is placing a large number of diaphragm suction pumps, both for power and hand operation, with contractors all through the lower tier of Southern States, where a great deal of dewatering needs to be done in connection with work now under way.

The Henry Vogt Machine Company, Louisville, Ky., has been awarded the contract for a complete steam generating plant at Fort Sam, Houston, Texas, including boilers, feed water, heat, &c.

A small pumping plant for public service will be required in the near future at Chipley, Fla.

It is reported from Crowley, La., that bids will be asked for by the city on a water tube boiler of 250 hp. and an engine driven generating unit of 175 kw. for electric power and lighting service.

The Southern Clay Products Company, Chattanooga, Tenn., is reported to be in the market for a hoisting engine of the type used in mining work.

Electric hoists have figured quite prominently this season in the sales for Southern territory of the Mead-Morrison Mfg. Company, which maintains a district office in New Orleans at 110 North Peters street.

In connection with the improvements to be made in the shops of the Georgia Southern & Florida Railroad at Macon, Ga., a large number of motors will be installed for

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driving the machinery. The company will not be obliged in future to maintain its own power plant, having concluded an arrangement with the Central Georgia Power Company, Macon, for supplying electric current.

The R. D. Cole Mfg. Company, Newnan, Ga., is deriving a good deal of business at present from the Southwest. It was recently awarded the contract for an elevated steel tank to be used for municipal water service at Fort Worth, Texas.

It has been decided at Gainesville, Ga., to install for auxiliary service a motor-driven centrifugal pump of 1200 gal. per min. capacity.

An engine or turbine-driven power plant of about 1000 kw. initial capacity is to be built at Elkins, W. Va., by the Elkins Electric Railway Company. Rails were recently ordered for an eight-mile road.

The Southwest

KANSAS CITY, MO., July 25, 1910.

Were it not for the buying which continues to be done by municipalities, county boards, central power stations, electric railroads and some of the larger mining and lumber companies, the machinery trade, outside of contractors' equipment, would be almost at a standstill. Orders from these sources are, however, sufficient to keep dealers and sales offices fairly busy. At the various metal working plants, including the machine shops maintained by some of the agencies, repairs and rebuilding work also keep a good many men steadily employed; so that the aggregate volume of business is quite satisfactory for July. The month, as a whole, will show up very much better than last year, sales of power and pumping machinery being alone sufficient to bring that about.

The fact that natural gas is now available over a wide stretch of territory, extending from the vicinity of Atchison, Kan., on the north to beyond Sapulpa, Okla., at the south, and that cheap fuels, including lignite coal, can be readily utilized in producers, has led to cumulatively growing interest in gas engines as prime movers for electric power plants. Each new installation made in a locality, if successful in its operation—which, unfortunately, some of them are not, results in several others before the year is over. The requirements, however, are not the same as those of the East, where the fuels are richer in thermal units, and local conditions need to be carefully studied before any recommendations of equipment are made. Ignoring that fact has caused some manufacturers no end of difficulty, and their prestige has, in not a few cases, received a setback in certain sections from which it will be a long time in recovering.

Plans have been prepared for a municipal power and pumping plant at Bridgeport, Okla., the equipment of which will include a direct acting triplex pump of moderate capacity driven by a gas or gasoline engine. All of the machinery needed will be purchased the latter part of August.

It is proposed by the city officials at Emporia, Kan., to install a new pumping engine of 3,000,000 gal. daily capacity, retaining the unit now operated, which has been in service over 20 years, as an auxiliary machine.

Work is now under way in Wichita, Kan., on the new shops of the Kansas City, Mexico & Orient Railroad, which will be the largest and best equipped of any in the Southwest.

Owing to the numerous plant improvements being made this season the repairing department of the Hervey Machine Company, Kansas City, has not experienced the lull ordinarily felt during the heated term. Work on engines, pumps and machinery auxiliary to them appears to predominate at present.

The Campbell & McClintock Company, Bloomberg, Texas, will establish a woodworking plant in Texarkana, Texas. Machinery heretofore in service will be utilized, with some additions a little later on.

The Mess Mining Company, Galena, Kan., has installed the machinery for a 200-ton concentrating plant, which is equipped throughout with electric motor drive.

It is expected that funds will be provided this year at Columbus, Kan., for building a water works system, with modern high-duty pumping machinery.

The Pacific Copper Company, Harrington, Ariz., will install a larger hoisting engine and air compressor than those now in service, together with other machinery.

A large power plant is to be built within the coming year by the St. Louis-Kansas City Electric Railway Company, whose headquarters are in Kansas City. It is stated that a bond issue amounting to $15,000,000 has been placed with bankers in Paris, France, thereby enabling the construction work to be undertaken at once. Purchase of electric generating machinery and operating equipment will not need to be considered until later. A steam-driven plant is contemplated.

An electric generating plant for lighting purposes is to be constructed at Osage, Okla., by the Osage Land & Development Company.

Funds are being provided for the purchase of new machinery to be installed in the municipal power plant at Brownsville, Texas.

An engineer has been engaged by the city of Hamilton, Texas, to prepare plans and specifications for a pumping plant and system of water supply adequate for at least some years to come.

Through the efforts of the Commercial Club, Ottawa, Kan., a planing mill, electrically operated, will be located there by W. T. Smith, who can probably be best addressed in care of that organization. Some of the machinery needed will be removed there from another place.

The Kansas City Bolt & Nut Company is crowding its plant at Sheffield, Mo., near Kansas City, to the full limit of the capacity afforded by the present equipment, and it is the expectation locally that provision will be made before long for some enlargement of the works.

In connection with the car barns which are planned for erection in Galveston, Texas, the Galveston-Houston Electric Company will install a machine and forge shop for repair work.

It is reported from Yoakum, Texas, that machine shops for maintenance and repair work will be built there by the San Antonio & Arkansas Pass Railroad. The machinery list has been completed.

The contract for constructing a steel bridge at Fort Sill, Okla., has been awarded the El Paso Bridge & Iron Company, El Paso, Texas.

The Marshall & East Texas Railway, Marshall, Texas, will erect at that place a blacksmith shop, 50 x 160 ft.; planing mill, 40 x 60 ft.; store room, 40 x 60 ft., and a car repair shop, 40 x 140 ft., for which all necessary equipment has been purchased. A little later it is the intention of the road to put in a 70-ft. turning table and a coaling station.

The Temple Iron Works, Temple, Texas, has signed a contract with the Chamber of Commerce of San Angelo, Texas, for the removal of its plant to that city. The works will be located on a site donated by the Chamber of Commerce.

The Northwest

ST. PAUL, MINN., July 25, 1910.

Buying on account of hydroelectric plants has again become a prominent feature of the market and is doing much to dissipate the usual summer dullness. Not only are there a number of large projects which have advanced to the stage where machinery is required, after months of preliminary construction work on dams, canals, forebays, penstocks, power stations, &c.; but numerous mining companies, saw mill operators and others engaged in Western developments are also planning to install plants of moderate capacities, by means of which current for running motors to drive their machinery will be furnished by water power. The situation is one which the leading manufacturers of such equipment are watching closely. In many cases hydraulic turbines of standard design can be used for the service last mentioned, just as well as the more expensive machines of special design which must ordinarily be adopted where high commercial efficiency is indispensable, as in central power and lighting stations. Hence, a considerable percentage of this Western business can be handled by local equipment companies at a minimum of engineering expense and with benefit to all concerned.

A natural corollary of the activity in hydroelectric and pumping plant construction is an extensive demand for valves and control apparatus of all kinds, from the small sizes to the largest. Jobbing houses, as well as manufacturers' agents located in this territory, have had an excellent trade in such appliances since early in the spring and it is keeping up very well through the summer.

Dealers in second hand machinery, with the possible exception of two or three leading houses, have not been doing much lately and buyers have more choice of such equipment than they were given a month or so ago. Prices, however, appear to be still maintained at a relatively high level as compared with new machines. This is particularly true of shop tools.

The Minneapolis Steel & Machinery Company, Minneapolis, has been awarded the contract for six hydraulic turbines, two alternating current generators of 250 kw. each, two centrifugal pumps with an aggregate capacity of 2,100,000 gal. daily, exciter unit, switchboard, power-house, crane,

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&c., for a hydroelectric power and pumping station to be erected for the city of Idaho Falls, Idaho.

The Superior Iron Works Company, Superior, Wis., is making a feature of special machinery, including hoists, engines, &c., designed for operation under such conditions of service that standard types cannot be used to advantage. Much of this business originates in and around Duluth.

The Water & Light Commission, Anoka, Minn., has ordered from R. B. Whitaker & Co., St. Paul, two water tube boilers aggregating 300 hp., together with feed water heater and auxiliary apparatus. The same firm will furnish the stack for the furnaces. An electric generator of 175 kw. capacity, driven by a cross-compound Corliss engine, motor driven pumps, &c., will be separately contracted for this week. This equipment is to be added to the plant of the Western Water, Light & Traction Company, which the city purchased some time ago and will enable continuous 24 hr. service to be maintained, with possible use of commercial day load for local industries.

The Green Engineering Company, which has a district office in St. Paul, is introducing its chain grate stokers quite extensively through the Northwest, many owners of power plants having adopted them on account of the operating economy which they make possible.

The Bismarck Mining Company, Keystone, S. D., is preparing for a resumption of operations which will lead to the purchase, in due course, of considerable machinery. Other mines in the same district are also to be further developed.

W. I. Gray & Co., Minneapolis, have been awarded a contract by the Government to remodel the electric system at Fort Snelling.

Plans are now being worked out in detail by the engineers of the Lewiston-Clark Improvement Company for a large electric power station to be constructed in the vicinity of Lewiston, Idaho.

An election is to be held at Butler, S. D., to vote on the question of issuing bonds for the construction of a pumping plant and water distribution system.

The contract for an elevated steel tank to be used in municipal service at Raymond, Minn., has been let to the Des Moines Bridge & Iron Works, Des Moines, Ia.

Some additional equipment will probably be required in the near future for the plant of the Crookston Water Works, Power & Light Company, Crookston, Minn., where extensions in the service are under consideration.

A power plant is now in operation at the site of the Minnesota Steel Company's works near Duluth, together with temporary structures for the manufacture and handling of materials to be used in construction work, the concrete block factory being already a heavy producer. The erection of permanent buildings is just beginning. A double-decked bridge across the St. Louis River will soon be completed, and after this the delivery of material of all kinds will be considerably facilitated.

The installation or purchase of a municipal water works system is being discussed by the authorities at Stillwater, Minn.

The American Hoist & Derrick Company, St. Paul, Minn., will erect a building of steel construction 90 x 200 ft. for fabrication steel work. It will be equipped with electrically operated machinery which will be moved into the new building from other departments.

The Albia Business Men's Association, Albia, Iowa, has signed a contract with John Z. Evans of that city for the establishment of a factory to make mine equipment, consisting of coal cars, drills, tools, &c. The factory will be erected on a site 66 x 132 ft.

The Christie Engine Company, John T. Christie, secretary, Hummel Hotel, Waterloo, Iowa, has bought a tract of about 31 acres in North Waterloo, about one-third of which will be used by the company as a factory site. The plant to be erected by the company will consist of factory buildings, power plant and foundry. The power plant building will be erected at once, and when completed will be equipped with a 300 hp. Christie air-steam Corliss engine, which is now being built in Milwaukee, Wis. The other buildings will be erected as rapidly as possible.

The Russell Grader Mfg. Company, 2429 University avenue, Minneapolis, Minn., may purchase later on a large drill press, a standard size punch press, a multiple punch and a special forming machine to form half sections of corrugated pipe for a plant it is having erected at Minneapolis.

San Francisco

SAN FRANCISCO, CAL., July 20, 1910.

Reports from Los Angeles and from the northern cities indicate that the labor troubles are approaching an end, and the shops are expected to be in full operation within a few weeks under practically the same conditions as formerly prevailed. The situation at San Francisco is still unsettled, but a better feeling prevails, as the local unions are disposed to admit that hours and wages here cannot be radically different from those at other coast points. While San Francisco could not be placed on an open shop basis without a struggle, it is believed that the necessary readjustment of terms can be effected with little difficulty. If so, a renewal of activity in the local machinery trade is assured.

The machine tool market has not yet shown any signs of life, as the present equipment is adequate for most of the work in hand, and machine shop operators are unwilling to make any large purchases until the future is more definitely assured. No individual orders of consequence have been booked, and no large inquiries are in the market. A quiet condition is expected at this time of year, however, and local merchants take a cheerful view in regard to the fall trade. A fair volume of very small orders is coming from various shops in the interior.

The demand for miscellaneous machinery continues on about the same lines as before, with a little more activity in some departments. The largest movement is probably in road machinery. Inquiries are still coming in from all parts of the coast for every description of equipment used in highway improvements, and local dealers are having some difficulty in making prompt deliveries. Considerable improvement is noted in rock crushing machinery. Several large crushing plants of some importance have been sold, and dealers are getting behind on deliveries of small crushers. Agricultural machinery and implements still find some demand, though most lines are less active than a month ago.

Pumping engines of both local and Eastern make find a ready market, small irrigating pumps being one of the leading features. Equipment for handling oil is also in good demand, though oil well machinery is less active than for some time past, and some second-hand well rigs are on the market. This condition is due to the impossibility of transporting the oil now produced, and well equipment will probably be in small demand during the fall.

Local gas engine manufacturers report a material increase in their foreign business, and many orders have been placed by California interests for both local and Eastern makes of gas engines. The C. L. Best Gas Traction Engine Company has completed its factory in Oakland, Cal., and has recently placed several orders for engines with the Buffalo Gasoline Motor Company. This company is now demonstrating its engines, and announces that it will manufacture combined harvesters next summer.

Several large woodworking machines have been purchased by the Pacific Lumber Company, Eureka, Cal., and the Weed Lumber Company, Weed, Cal.

Henshaw, Bulkley & Co., local merchants, are furnishing an Austin rock crushing plant with a capacity of 2000 tons per day for the San Dimas Quarry Company, Los Angeles, Cal.

The Geo. E. Dow Pumping Engine Company, whose plant is in Alameda, Cal., has moved its San Francisco offices from First and Howard streets to the Sheldon Building, First and Market streets. The company has booked orders for two complete surface condensing plants for the Japanese Government. It is also installing an electrically driven pump of 3,000,000 gal. per day capacity for the city water works of Marysville, Cal., and is supplying all pumps for a new ferry boat which the Union Iron Works is building for the Santa Fe Railroad.

The Sacramento Valley Irrigation Company is planning to install a large pumping plant on the Sacramento River, near Red Bluff, Cal.

The San Francisco office of the Buffalo Gasoline Motor Company has been moved to 23 Main street, where a large display of gas engines is shown.

The volume of marine work is increasing, the most important item being the contract for two submarine torpedo boats, awarded to the Union Iron Works. Bids have been taken for new engines for the United States tug El Aguador. The Southern Pacific Railroad is preparing to build a large ferry steamer, and a number of smaller vessels are in prospect.

The Board of Public Works at Los Angeles, Cal., has been authorized to spend $10,000 for repair parts for machinery used on the construction of the Owens River aqueduct.

Work has been started on the new machine shop building of the Santa Fe Railroad at San Bernardino, Cal.

The Grandjean Gas Machine Company has been incorporated at San Diego, Cal., with a capital stock of $1,000,000, by G. R. Harrison, G. H. Ellerman, R. A. Wood and W. R. Gross. The company intends to manufacture gas engines under a patent held by Arthur Grandjean.

The Pendleton Iron & Metal Company has been incorporated at Los Angeles, Cal., by H. H. Benner, J. H. and A. M. Pendleton, J. H. and F. P. Alexander, with a capital stock of $50,000.

The Western Pacific Railroad has purchased a large

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concrete building adjoining its track in East Oakland, Cal., to be used as a machine shop.

The Griffin Car Wheel Company of Chicago has purchased a 15-acre tract at Los Angeles.

The Bunting Iron Works has been incorporated at Coalinga, Cal., with a capital stock of $150,000, by G. A. Scott, R. D. Jones, R. S. Essen, H. W. Bedford and J. T. Hall.

The Denver Rock Drill & Machinery Company, Denver, Colo., is preparing to enlarge its business facilities at El Paso, Texas.

The El Paso Bridge & Iron Company, El Paso, Texas, is planning to erect a new foundry.

The Farther Central West

OMAHA, NEB., July 25, 1910.

Except for purchases made by municipalities and public service corporations, activity in the machinery market is confined almost wholly at present to the Western mining territory. Buying for the account of industrial establishments is practically suspended. Some small orders are being placed, but nothing of consequence has developed very recently. Manufacturers of gasoline engines, concrete mixers, crushers, drilling outfits and contractors' machinery of various kinds are, however, shipping quite freely to other parts of the country, and many local plants are busy on tank, sheet metal and repair work, as well as iron and steel fabrication. Some inventory taking is being done. Conditions generally are merely what they have usually been during the heated season and possess no particular significance. For the future the outlook is bright, as the industries of this section are unquestionably on a sound basis of prosperity, and, with the good crops that are now expected, the purchasing power of the various States will be large.

The installation of an improved system of water works, with one or more pumping units, is proposed at Ephraim, Utah, where a bond issue has been provided for the purpose.

An electric generating plant will be installed at Ansley, Neb., for city service and the equipment of the pumping station strengthened. Purchases for that purpose are to be made in the near future.

C. Miller & Sons, Clermont, Iowa, are figuring on the installation of several electric power and lighting plants in that vicinity, contingent upon the granting of franchises by the local authorities in the communities affected.

Improvements in the water works system, involving the purchase of some new mechanical equipment, are being considered by the authorities at Red Cloud, Neb.

It is expected that plans will be determined upon in the near future for an electric power station to supply the Greeley, Denver & Northwestern Railway, Greeley, Colo., a company for the construction of which has recently been organized there.

The municipal authorities at Belle Plaine, Iowa, have under consideration an application for a franchise from H. R. Mosnat, who proposes to install a modern gas plant. The city itself maintains an electric power and lighting station of 125 kw. capacity.

The Salt Lake City, Utah, office of the Sullivan Machinery Company, whose works are at Claremont, N. H., and Chicago, Ill., is in receipt of numerous inquiries for air compressor outfits to be used at the mines. Sales recently have been excellent and there are indications of a heavy run of trade later on.

Owing to the rapidly increasing use of electric power at the mines and concentrating plants of the district, there will need to be additional distributing capacity provided for the plant of the Gilpin County Light, Heat & Power Company, Central City, Colo. The station from which it derives its power may also require some new machinery in the near future.

A concentrating plant will be erected before long and other improvements in its property made by the Continental-Morris Mining Company, Encampment, Wyo.

Some purchases of equipment are being made at present by the Charles City Western Railway, Charles City, Iowa, which has a new traction line under construction.

The Golden Sun Mining & Milling Company, Gilpin, Colo., is at work on a new ore reduction plant, the machinery in which will be driven by electric motors throughout.

A battery of boilers, engine, dynamo, motors and other mechanical equipment will be required in connection with a new county building at Marengo, Iowa, the plans for which are now being prepared by O. A. Hoagland, Chariton, Iowa.

The Omaha & Council Bluffs Street Railway Company, Omaha, Neb., has awarded the contract for the structural steel to be used in its new power house to the Wisconsin Bridge & Iron Company, Milwaukee. The building will be 140 x 245 ft. Some of the machinery required has been provided for and more will be purchased in the late summer and fall.

The North Pacific Coast

SEATTLE, WASH., July 22, 1910.

Trade remains quiet, but with excellent prospects for the future. At present a good deal of business is being derived from British Columbia, with scattering inquiries from the Northwest provinces; and the buying across the border, which is, in fact, largely for the account of Seattle, Tacoma and Portland interests, has gone far in compensating for dullness in other directinos. Orders for marine work have also helped out and Government contracts are an appreciable factor at this time. The labor situation is very well covered by statements issued in behalf of the Metal Trades Associations of the coast. So far as the north is concerned, manufacturers are successfully maintaining the non-union policy that has been adopted, and no complaint of unfilled contracts is heard.

At the Bremerton, Wash., navy-yard the Government is installing a very complete cutting and welding plant operated on the Davis-Bournonville system, which will be put in service at once.

An ore crusher of larger capacity than that heretofore in service is being installed by the Kennedy Mining Company, Susanville, Ore., which will extend its operations further during the fall. A new shaft is to be opened. This will probably necessitate the purchase of a heavier compressor, hoist and other machinery.

The Star Machinery Company, Seattle, which handles heavy contractors' outfits, as well as saw mill, planing mill, wordwooking, mining, crushing and marine machinery, is doing particularly well in that line at the present time, owing to the great amount of construction work now in progress. The machine shop which this company operates in connection with its businesss gives it the best of facilities for placing all equipment in first-class operating condition before delivery.

Contract for the erection of four steel bridges over the Chehalis River and other streams in the vicinity of Chehalis, Wash., has been awarded the Penn Bridge Company, Beaver Falls, Pa. This is one of the few such contracts that have gone East recently.

Machinery equipment of various kinds will be needed at intervals, within the next few months, by the Globe Mining Company, Orient, Wash., which is running a long tunnel to develop its property there.

The Mianus Motor Works, Seattle, Wash., are making a specialty of gasoline engines, for which the demand recently has been quite heavy. For the coming year an enlarged output will be necessary.

A new engine built in the shops of the Brownell Company, Dayton, Ohio, has been installed by the Hartford Shingle Company, Everett, Wash., which will probably make further improvements in its plant later on.

The engines of the International Harvester Company have been placed to a considerable extent in this section by the Poulsen Implement Company, Seattle, Wash.

The Chamber of Commerce, Aberdeen, Wash., is carrying on a vigorous campaign for the location of new industries in that city.

The Seattle Engineering Company, whose offices are in the Central Building, Seattle, Wash., are making a specialty of hydroelectric power and pumping plants, in the construction of which there has recently been great activity.

The Norwalk Steel Company has been organized by T. L. Croteau, Albert F. Jones and others, of Portland, Ore., to establish a plant for the manufacture of iron and steel. It is incorporated for $50,000. Further details have not been made public.

A large new timber cutting plant will be built at Ellensburg, Wash., by the Walther Lumber Company, whose main office is in the Lindell Building, Spokane, Wash.

The Pacific Ornamental Iron Works, Seattle, Wash., as the result of the activity in building operations, have been doing a very satisfactory business for some months past, and the outlook for fall trade is good.

The manufacturing plant of the Onn Lumber & Shingle Company, Tacoma, Wash., which was destroyed by fire on June 28, will be rebuilt at once for considerably increased capacity. Motor drive is to be used and the machinery laid out in accordance with the most modern practice.

The Central-Chehalis Company, Chehalis, Wash., is having a new steel gas holder of 100,000 cu. ft. capacity built in connection with its new plant, which will be completed Sept. 1.

By the sale of bonds recently voted at Ashland, Ore.,

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funds will be provided for the completion and equipment of the municipal power plant as originally planned.

The Ocean Falls Company, composed of American interests, is erecting a large pulp mill and other buildings at Ocean Falls, B. C., for the account of which heavy purchases of machinery have recently been made. A hydro-electric plant will be established in connection with the enterprise and various auxiliary industries started. Included in the equipment will be tools for repair work.

The Standard Pattern & Model Works, Seattle, Wash., which is located at 1028 First avenue, South, continue to have a good run of business, despite the dullness in some lines, and an increase in facilities is reported to be contemplated.

Electric generating units aggregating 1500 kw. in capacity will be provided some time this year for the power plant of the Crook County Water, Light & Power Company, Redmond, Ore.

The Robinson Mfg. Company, Everett, Wash., has placed an order with the Seattle office of Allis-Chalmers Company for a 155 kw., 900 rev. per min., 60 cycle, three phase, 480 volt, alternating current generator, and a number of induction motors, to be installed in a new plant which the company is now constructing.

The Wright & Smith Company's machine shop, which was removed to the King Street Dock, at the foot of King street, is doing a good business in the new location. A good deal of repair work is offering at this time.

The firm of Daggett & Jacobsen, with headquarters in the Peyton Building, Spokane, Wash., succeeds to the engineering business established by G. F. Daggett.

The new pumping station at Spokane, Wash., which has a capacity of 36,000,000 gal. daily, has been placed in operation.

The Ransome-Crummy Company has leased two rock quarries at Klamath Falls, Ore., where a large crushing plant will be installed.

Government Purchases

WASHINGTON, D. C., July 25, 1910.

The Bureau of Supplies and Accounts, Navy Department, Washington, will open bids August 9 under sechedule 2740, for one punching and shearing machine, one planing and jointing machine, one chain saw mortiser, one drop table molder and one sensitive press drill.

The Isthmian Canal Commission, under circular 597, will open bids August 2 for furnishing dredge chains, attachments, plugs, &c.

The Isthmian Canal Commission will open bids August 19, under circular 598, for sluice gate valves, pumps, condenser tubes, &c.

The Bureau of Supplies and Accounts, Washington, D. C., Navy Department, opened bids July 19, as follows:

Class 51.—One universal cold saw cutting machine—Bidder 102, Manning, Maxwell & Moore, New York, $5950; 106, Newton Machine Tool Works, Philadelphia, Pa., $6512 and $6855, $6900; 109, Niles-Bement-Pond Company, New York, $6417; 155, Tindall-Morens Company, Eddystone, Pa., $5954.

Class 61.—Boiler, stoker, &c.—Bidder 64, G. & W. Mfg. Company, New York, $2651, $8443 and $6693; 84, E. Keeler Company, Williamsport, Pa., $6122; 72, Heine Safety Boiler Company, St. Louis, Mo., $5900; 173, Babcock & Wilcox Company, Philadelphia, Pa., $5748.

Class 71.—Thirteen compressd air driven hammers and two drilling machines—Bidder 33, Chicago Pneumatic Tool Company, Chicago, Ill., $666; 39, Cleveland Pneumatic Tool Company, Cleveland, Ohio, $659.50; 56, Fairbanks Company, Washington, D. C., $485.60; 78, Independent Pneumatic Tool Company, Chicago, Ill., $685.50; 79, Ingersoll-Rand Company, New York, $348.64 and $363.20; 124, Pittsburgh Pneumatic Company, Pittsburgh, Pa., $250.90, part.

Class 72.—Two sets of gasoline machinery—Bidder 37, Camden Anchor-Rockland Machine Company, Camden, Maine, $700; 151, Tasker & Strobridge, Philadelphia, Pa., $910; 168, Wallace Brothers, Norfolk, Va., $1058.05.

Class 91.—Motor generators, motor generator sets and spare parts—Bidder 46, Diehl Mfg. Company, Elizabethport, N. J., $1641.30; 54, Fort Wayne Electric Works, Fort Wayne, Ind., $1383; 59, General Electric Company, Schenectady, N. Y., $3026; 174, Crocker-Wheeler Company, Ampere, N. J., $1410.

Brazil to Encourage Its Iron Industry

In transmitting the following announcement, made by President Pecanha on May 12, Consul-General George E. Anderson of Rio de Janeiro, says that it is chiefly significant of the policy of the Brazilian Government, and that a definite contract for the actual establishment of a plant would probably contain other and special concessions:

"Consideration has been given to several proposals which have been made to the government for the establishment of the iron industry, and it has been decided to make general provisions relative thereto. To establishments which shall undertake to operate furnaces for the smelting of iron ore, with facilities for the reduction and refining of the same and machinery adapted to the production of plates, rods and various iron and steel products, the following concessions will be granted, with special privilege to none:

"Reduction of freight rates on Federal railroads for raw and manufactured products on the bases of the following: Coal, coke and other materials destined for use in ore reduction and iron working shall pay 8 reis per ton-kilometer, or about 0.4 cent per ton-mile; pig iron in bars and ingots shall pay 12 reis per ton-kilometer, or about 0.6 cent per ton-mile; iron or steel in a manufactured or partially manufactured state shall be given a rate of 14 reis per ton-kilometer, or about 0.7 cent per ton-mile; exemption from consumption taxes and charges for dispatching through customs for all machinery and apparatus and for necessary materials for use in such establishments; privilege of constructing quays, bridges, docks and other apparatus necessary for the handling of ore and other material going to or from the establishments; reduction of dock charges for ore and coal; privileges for building connecting spurs or switches from the mines or furnaces to any Federal railroad; and special facilities for the transfer of materials in transit from a railroad of one gauge to one of another.

"The government claims the right to insist upon the installation of special equipment for supplying armament and naval equipment and to fiscalize the establishments temporarily. Time limits for the installation and equipment of these establishments and the minimum amount of production in each case will be determined in accordance with the needs of each case and with local conditions."

The Dayton Motor Car Company's Large Plant

The Dayton Motor Car Company, Dayton, Ohio, is pushing construction on its No. 3 plant. This plant will have 86,000 sq. ft. of floor space in the foundry; the forge shop will have 12,000 sq. ft., equipped with 12 drop hammers and other fabricating machinery; the frame room, in which are installed hydraulic presses, punches, &c., contains 12,000 sq. ft.; the radiator and sheet metal departments occupy about 14,000 sq. ft. In addition to this there will be two assembly buildings with a total of 125,000 sq. ft. of floor space. These buildings are erected on a 25-acre tract of land within the corporate limits of the city, and around the entire tract is being constructed a testing track 20 ft. wide. All the cars assembled in this plant, as well as those built in plants Nos. 1 and 2, will be tested on this track. There will be few changes in Nos. 1 and 2 plants. These will continue about as they have been for the past year, with a few extensions. The Stoddard-Dayton cars, all parts for which the company manufactures, will be built as heretofore in the No. 1 plant, which occupies about 350,000 sq. ft. of floor space. The Courier car, now known as the Stoddard-20, will be built in the No. 2 plant, with about 80,000 sq. ft. of floor space. All machinery at present required has been purchased.

The W. H. Clore Mfg. Company, Washington, Ind., recently incorporated, will occupy an L shaped building, 50 x 750 ft., located on 5 acres of ground and served with ample switching facilities. The company is not considering the purchase of any new equipment at present, but as the plant to be occupied at Washington is considerably larger than the one now occupied by the company it is quite likely that additional machinery will be needed in the future and manufacturing facilities extended.

Steel for Rails and Cars

American Experience as Given at the Berne Congress

Two papers by representatives of the railroads of the United States attracted attention at the recent International Railway Congress at Berne, Switzerland. From abstracts given by the London *Times' Engineering Supplement* we take the following:

In an important report presented by M. L. Byers of the Missouri Pacific Company, it was pointed out that there has been a considerable increase in the weight of locomotives in the United States, and that, although for a time the increase in the size of the locomotive was checked by the difficulty of securing sufficient heat from the narrow firebox to meet steam-generating requirements, that condition has of late years been met by the more extended use of the Mallet type of locomotive with two independent sets of drivers and cylinders. The effect of that departure in design has been to secure a larger and more powerful locomotive without adding to the existing maximum load. Mr. Byers instanced the severest load per foot of track arising from any American rolling equipment of today as that produced by the Pacific type passenger locomotive of the Pennsylvania Railroad, with its three pairs of driving wheels having a load of 61,300 lb. per axle on a total driving wheel base of 13 ft. 10 in. He believed, however, that present standard American tracks could be so strengthened as to make it improbable that there will be any immediate need for a radical change in the type of roadway construction. He also pointed out that experiments suggested possibilities of economy in rail wear by the use of a single rail section specially designed for straight track, and of one or two rail sections specially designed for curves. He believed that no compromise section of rail could be designed which would be economical under all conditions of curvature.

The increase in the permissible percentage of carbon in rail steel due to the reduction in the percentage of phosphorus obtainable by the use of the basic open hearth process has resulted in a steel of such superior qualities as to point to the gradual abandonment of the acid Bessemer process, as the high grade ores with low content of phosphorus become exhausted. Alloy steels were referred to as offering great possibilities for steel rails if the cost could be reduced. The design of the rail section to permit of the rolling of the head at low temperatures was regarded as of the utmost importance. With regard to the strengthening of bridges, it would seem that no special rules can be laid down, but that each case must be considered on its merits. In deciding whether a bridge is to be strengthened or rebuilt the reports stated that the question of cost is an important factor, but that in the case of bridges of small span it is preferable to replace them with new structures. Mild steel is used in current practice in strengthening work, and ingot iron could be employed without hesitation for strengthening wrought iron bridges. The average cost of strengthening works was estimated at twice the ordinary cost per ton of new bridges.

Steel in Railroad Equipment Construction

In Section 2 the first group of reports taken were those dealing with the use of steel in the construction of locomotives and rolling stock. A somewhat monumental report was brought up by D. F. Crawford of the Pennsylvania Company, which has used steel for the construction of freight and passenger cars for many years. Mr. Crawford largely confined his report to the modern freight car, which since its construction in steel has had the effect of creating an entirely new industry. He told the Congress that in 12 years the larger car manufacturing companies in the United States had built over 300,000 all-steel cars and about 250,000 steel underframe cars. There are now in use on American railroads over half a million such cars, representing from 20 to 22 per cent. of the freight-carrying cars in use. It is impossible, he said, to give any accurate comparison of the first cost of steel cars and cars of wooden construction, as the steel cars are of much stronger design, and part of the higher cost is therefore due to increased strength rather than to the change in the material. A large portion of this extra cost is, however, soon replaced by the lower maintenance charges for the all-steel car. Statistics show that such cars can be maintained for about $30 per car per year, compared with $60 per car per year for cars of wooden construction. Some interesting figures were also quoted in regard to weight and capacity of cars of steel construction or having steel underframes. It was shown that with an increase of 67.5 per cent. in the average paying load per car the average weight of the vehicle increased but 47 per cent. This diminished percentage of dead weight to capacity has had the effect of enabling a given locomotive to haul about 60 per cent. more paying load than it could have hauled in the cars of lower capacity formerly in service. In the case of passenger cars for which steel is now being largely used, over 1000 being now in service, a high factor of safety is, of course, desirable, and the design of the center sill construction of a car illustrated in the report was based on end shocks equivalent to 400,000 lb. compression. In the construction of steel passenger cars open hearth steel of low carbon content containing about 0.06 per cent. of phosphorus is used.

Correction.—In the illustrated description of the Mellberg tube closing machine printed in *The Iron Age*, July 21, 1910, the name of the maker by a typographical error was given as the Mellberg Machine Company. It should have been the Mellberg Mfg. Company.

The June 30 bank statement in Oklahoma shows that there was little ground for the fear that the national banks in that State, being outside the pale of the guarantee of deposits in State banks, would lose accounts to the latter. Between January 31, the date of the last previous report, and June 30, deposits in the guaranteed banks declined from approximately $50,000,000 to $45,000,000. In the same period the number of State banks increased from 668 to 691. Resources of the State banks declined from $68,000,000 at the time of the January report to $60,000,000 on June 30.

The United Steel Company, Canton, Ohio, has purchased 137 acres of land about a quarter of a mile distant from the location of its present plant. This land has been secured to take care of future extensions, the present site not being adapted to further enlargement, as it is hemmed in on all sides by other plants. It is probable that the company will build a blast furnace next year, but it states that it does not expect to start any new construction work this year.

The Chickamauga Steel & Iron Company has been incorporated under the laws of New Jersey with a capital stock of $5,000,000, divided into common shares of the par value of $100 each. The incorporators are George W. Adams, Montclair, N. J.; Robert W. Pollock, 51 Chambers street, New York City, and Francis Van Winkle, 134 Guernsey street, Brooklyn, N. Y. The Registrar & Transfer Company, 15 Exchange place, Jersey City, N. J., is the registered agent.

The New York Metal Exchange will open Monday, August 1, in new quarters in the Trinity Building, 111 Broadway, New York. It is an interesting coincidence that 28 years ago to the exact date the Metal Exchange was instituted in the building at 34 Pearl street, which was recently sold.

New Tools and Appliances

The Linsley Drill Holder for Lathes.—The Linsley Tool Company, Cleveland, Ohio, has brought out a drill holder for use with lathes where the shank is turned to fit the tailstock spindle and the outer part or body is bored to fit the drill or tool shank. A cross pin having a loose sliding fit in a hole bored through the holder has a grove cut in it whose sides extend down over the tang of the drill and prevent the latter from turning. The bottom of the groove is cut on an incline so that the pin can be used to force the drill from the holder and in use the end of this pin bears against the tool rest.

Recording Thermometers.—The Taylor Instrument Companies, Rochester, N. Y., has brought out and perfected a new type of recording thermometer covering various ranges of temperature. Among the advantages claimed for this instrument are ease in reading the chart, as the scale divisions are uniform throughout the entire range, and a large recording space, 3⅜ in. being provided for that purpose on a 10-in. chart, as compared with a space of 3½ in. on the 12-in. charts ordinarily used. These thermometers are provided with a temperature bulb which actuates the recording mechanism, the connection being made by 6-ft. capillary tube.

Expanding Boring Bar.—The Buck Boring Bar Company, Huntington, W. Va., is making a bar designed for boring car wheels which is provided with four cutters that are all independently adjustable so as to divide up the metal to be removed. The inner ends of the cutters rest against wedges in the center of the bar and are adjusted by set screws located along the center line of the end of the bar. A cutter is provided for chamfering the end of the bar and there is also a water attachment so that a small stream of water is directed to the cutting tools. Each size of bar has a range of adjustment of 2 in., so that it will bore two sizes of M. C. B. standard wheels. It is stated that with this tool from 70 to 80 steel wheels have been bored in a 10-hour day.

After 40 years' service the oak floor in the works of the Charter Gas Engine Company, Sterling, Ill., has been taken up and is being replaced by concrete. Although there has been a great deal of trucking and moving of flywheels and other heavy castings on this floor, it is stated that there has been comparatively little wear and that some of the flooring is in better condition than the new material purchased in the market at the present time.

The American Institute of Chemical Engineers has issued Vol. II. of its *Transactions,* covering the proceedings and papers of its first semiannual meeting, held at the Polytechnic Institute, Brooklyn, N. Y., June 24 to 26, and of the second annual meeting, held at Hotel Walton, Philadelphia, December 8 to 11, 1909. The volume comprises 308 pages and has been published for the Institute and is for sale by the D. Van Nostrand Company, New York.

The A. L. Greenberg Iron Company, Terre Haute, Ind., has purchased a site containing 13 acres, and will immediately begin the erection of four one-story factory buildings. It will also erect a building for the manufacture of road machinery, culverts and steel bridges. It is the intention of the company to raze its old plant upon completion of the new buildings, which will be equipped throughout with new machinery.

Creditors of the March Brownback Stove Company, Pottstown, Pa., have petitioned the court for a receiver. Bills in equity were filed by Willis G. Roberts, executor of James Rogers, deceased; Michael March, administrator of T. J. March, deceased, and Henry M. Miller, executor of Franklin March, deceased. The company is one of the important industries of Pottstown. The receiver has not yet been named.

The city of Providence is establishing a half time or co-operative school in which the Rhode Island Branch, National Metal Trades Association, is co-operating. Russell C. Lowell, instructor in mathematics and electrical engineering at the Providence Technical High School, has been placed in charge of the new course.

The Fayette County Gas Company, Connellsville, Pa., has made an advance in rates charged for natural gas, effective August 1. The general consumer will pay 27½ cents net, instead of 25 cents, per 1000 ft.; for the second 150,000 ft. per month, 20½ cents will be charged, and for over 300,000 ft., 14½ cents.

The new ore boat, W. C. Moreland, being built for the Jones & Laughlin Steel Company, was launched at Cleveland on Wednesday. She is a sister ship of the B. F. Jones and James Laughlin, owned by the same company, for which company a fourth ore boat is being built at Cleveland, to be named Willis L. King, in honor of the vice-president.

A contract for the erection of a new roundhouse for the Bessemer & Lake Erie Railroad at Greenville, Pa., has been placed with the Pittsburgh Construction Company, Pittsburgh. The plans call for a reinforced concrete building, containing 17 stalls for locomotives.

The Warwick Iron & Steel Company, Pottstown, Pa., blew in its No. 1 Furnace on July 22. This stack has been undergoing repairs for several months, and will be operated on foundry iron, for which the company has a large number of orders.

E. E. Brosius, Pittsburgh representative of the Atlas Car & Mfg. Company, Cleveland, Ohio, has sold to the McKeesport Tin Plate Company, McKeesport, Pa., 135 steel cars to be used in handling plate in the company's tinning and hot mill buildings.

The Aluminum Company of America, New Kensington, Pa., has let contracts for the erection of two new buildings, each 40 x 116 ft., one to be used as a melting room and the other as a warehouse.

The new No. 2 furnace of the Detroit Iron & Steel Company, on Zug Island, below Detroit, was blown in last week. It is 80 ft. high, 12½ ft. hearth and 18½ ft. bosh, and is equipped with four McKee hot blast stoves.

Spang, Chalfant & Co., Inc., operating the Etna Iron & Tube Works, Pittsburgh, have increased their capital stock from $900,000 to $2,000,000, to cover improvements in plant already made and others that are contemplated.

The recent labor trouble at the plant of the Standard Tin Plate Company, Canonsburg, Pa., has been satisfactorily adjusted to both sides, and the entire plant of this concern is now in full operation with plenty of orders ahead.

A Pennsylvania charter has been granted to the Greenville Metal Products Company of Greenville, Pa.; capital stock, $250,000, to manufacture drop forgings and parts of automobiles, steel cars and other vehicles.

Trade Publications

Electric Motors.—Sprague Electric Company, 527 West Thirty-fourth street, New York City. Bulletin No. 600. Gives general description and specifications for a line of single and polyphase induction motors. The different models of both types of motors are described and the different parts shown. Dimension tables and diagrams of the connections for both forms of motors are included. The polyphase motors are made for voltages of 110, 220, 440 and 550, while the larger sizes above 20 hp. are also wound for 2200 volts. The single-phase motors range from ¼ to 5 hp. and are wound for 110 or 220 volts, the latter being the standard winding for the larger sizes.

Recording Instruments.—The Bristol Company, Waterbury, Conn. Booklet. Size 8¼ x 10¾ in.; pages 64. Is not a catalogue but rather a series of illustrations of the more important Bristol instruments, with a partial explanation of the instruments and their applications. Contains a brief account of the progress made in the last 20 years in the development and manufacture of recording instruments for pressure, temperature and electricity. This is followed by illustrations of the different instruments, which include gauges for recording pressure, vacuum, draft, differential pressures and water levels; recording thermometers; thermometer-thermostats; indicating thermometers; electric pyrometers, indicating and recording and combined; recording ammeters, voltmeters and wattmeters; electric and mechanical time recorders; long distance recording tachometers; and a radii averaging instrument. Illustrated descriptions of the electric time recorder and the radii averaging instrument were printed in *The Iron Age* November 19, 1908, and June 30, 1910, respectively.

Lever Shears.—American Roll & Foundry Company, Canton, Ohio. Bulletin No. 10. Illustrates and describes a line of lever shears which are built in both low and high knife models in either right or left-hand types designed to be driven either by a direct-connected electric motor or by a belt from shafting. Six sizes in all are built, ranging in capacity from 1½ and 1¼ in. square stock to 6 in. square stock and miscellaneous scrap.

Steel Shafting.—Columbia Steel & Shafting Company, Pittsburgh, Pa. Catalogue and standard price-list of turned cold die rolled and polished steel shafting; drawn and polished squares, hexagons and flats; screw stock, and piston and pump rods. Tables are appended giving the weight per lineal foot for the different shapes, one of which shows the weight of finished shaft from 15-16 to 6 in. in diameter and from 1 to 24 ft. in length. The customary tables of decimal equivalents and standard wire and thickness gauges are also included.

Hydraulic Dredges.—Ellicott Machine Company, Baltimore, Md. Catalogue. Size 6 x 9 in.; pages 48. This is the company's 1910 catalogue describing and illustrating a line of hydraulic pipe line dredges. These vessels are built with capacities ranging from 1000 to 1500 cu. yd. per hour and are capable of delivering the excavated material through pipe lines exceeding two miles in length. Both wooden and steel hulled types are built, the latter being designed more especially for service in tropical waters where wood destroying worms are present. The illustrations include a number of different styles of dredges and views of the engines and dredge pumps employed.

Self-Measuring Gasoline Tank.—S. F. Bowser & Co., Ft. Wayne, Ind. Catalogue No. 2. Deals with the Bowser gasoline storage outfits. These are made in a number of different styles for storing the liquid underground in accordance with the Fire Underwriters' requirements, a portable wheel tank for supplying a large number of automobiles in a very short time, a direct-connection storage outfit which is the same as the one first mentioned except that the pump is connected directly to the tank, a special outfit in which the liquid can be pumped to different floors of a building, a number of cabinets and tanks for outdoor use where it is desired to locate the tank outside of and away from buildings, and fireproof cabinet in which the lumber used in its construction is covered both inside and out with galvanized sheet steel. All of the different tanks are illustrated and described and space is given to accessories such as a nozzle filter, a meter for recording the amount of gasoline pumped, hose for use with a portable filling nozzle, and a siphon and force transfer pump for transferring oils and liquids from the barrel to the storage tank.

Battery-Charging Rheostats.—Cutler-Hammer Mfg. Company, Milwaukee, Wis. Booklet. Size 5¼ x 8¼ in.; pages 48. Describes the company's entire line of battery-charging rheostats, which include two types for charging ignition batteries and six types for general charging work. All of the standard types are illustrated as well as several special ones, such as a motor-generator set panel and a panel for use with a gas engine driven dynamo and storage battery. Another section is devoted to descriptions and illustrations of protective panels and devices, and the application and advantages of these are pointed out.

Automobile Gauges.—The Industrial Instrument Company, Foxboro, Mass. Bulletin No. 36. Describes and illustrates a number of different types of gauges for use on automobiles for showing the oil pressure on the lubricating system, water circulating pressure, air pressure forcing fuel to the carbureter, boiler and fuel pressure on steam cars, illuminating gas tanks, tire pumps, and testing the cylinder compression. These instruments are made with eccentric and concentric dials and are equipped with either bottom or back connections and plain or beaded rings.

Vacuum Cleaning Systems.—The Blaisdell Machinery Company, Bradford, Pa. Catalogue. Describes the portable and stationary types of mechanical vacuum cleaning plants which this company builds and a number of buildings in which these plants have been installed. The layout of a typical vacuum piping system is shown and a diagram showing the approximate dimensions of plants having a capacity of from 1 to 20 sweepers is appended.

Steel Oil Derricks.—Carnegie Steel Company, Carnegie Building, Pittsburgh, Pa. Pamphlet. Devoted to steel derricks and drilling machines for oil, gas, salt, and other wells. Space is given to a description of the progress made in the art of designing from 1808, when the first well was drilled, to 100 years later, when the first all-steel drilling machines were placed on the market by this company. The different types of machine are described and this description is supplemented by complete and detailed illustrations.

Hoisting and Conveying Machinery.—Victor R. Browning & Co., Cleveland, Ohio. Catalogue, 6 x 9 in.; pages 24. Calls attention to a line of hoisting and conveying machinery which includes plain and geared I-beam trolleys and I-beam track systems for foundries, jib cranes, hand-power floor operated cranes, electric traveling cranes operated either from the floor or a cage, gantry bridges, man trolleys for handling coal, sand and granulated slag, and clam shell and orange peel buckets. The different pieces of apparatus are described and illustrations show some of them in use.

Expansion Bolts.—A. S. Seaman, 1638 Hutchinson street, Philadelphia, Pa. Price-list of the Positive expansion bolt and iron and brass expansion machine screws. These bolts are made in a number of different types, having a square head, a nut, hook, eye, and hitching ring, a hanger bolt for supporting mine hangers, and an eye shoulder expansion bolt for fastening guys for smokestacks, derricks, signs, stone dock walls, and supporting trolley wires. The screws are made with either flat or round heads. The different styles of bolts and screws are illustrated and tables are appended showing the different sizes and lengths made in each style.

Upholsterers' Wire Spring Machines.—Henry Spühl, St. Gall, Switzerland; Ed. Brand, 472 Moss Lane East, Manchester, England, sales agent. Pamphlet. Illustrations and descriptive matter explain the operation of a line of winding machines for turning out upholsterers' wire springs in a number of different sizes and styles. The machines include winding machines for ordinary double and single cone springs, others for knotting the springs and fixing the metal ties on the springs, and apparatus for setting both the single and double cone springs so that they will maintain their hight when in use. Specifications for the different machines and a partial list of users are appended.

Condensers.—Allis-Chalmers Company, Milwaukee, Wis. Two bulletins. No. 1070 covers the type B barometric condenser, which is built entirely of cast iron. The interior construction includes no bolts, rivets, screws or other parts that can get out of place and nothing that requires adjustment or attention. When once set up and put in operation it is stated that the condenser will give satisfactory service as long as the cast iron lasts. No. 1071 deals with the type C jet condenser, which is said to be the only jet type of condenser where the vacuum can be formed or recovered with full load on the engine or turbine without stop valves in the main exhaust pipe or auxiliary forced injection. This piece of apparatus is so designed that all the parts exclusive of the piping are placed entirely beneath the turbine and between the foundation columns, which make it possible to place the turbines as close together as may be desired. The exhaust opening of the condenser is bolted to the exhaust opening of the turbine through an expansion joint, an arrangement which eliminates all the exhaust piping and decreases the number of joints to the two required for the expansion connection, thus reducing the opportunity for leakage of air and consequent impairment of the vacuum. All the internal parts of the condenser are so arranged that they naturally lock together when the outer heads are bolted to the flanges on the outside of the shell, and special care has been taken to prevent water getting into the exhaust end of the turbine if the water pumps should stop for any cause.

Pyrometers and Related Apparatus.—S. H. Stupakoff, Pittsburgh, Pa. Catalogue. Treats of a number of different styles of pyrometers, such as portable base metal pyrometers, stationary pyrometers for medium and high temperature furnaces, thermo-electric pyrometers for blast furnaces, the Fery radiation pyrometers and electric resistance pyrometers. Other apparatus illustrated and described includes mechanical thermometers, automatic temperature regulators, indicating gauges, hydrostatic draft and pressure gauges, and a hydrostatic velocity gauge for the gases of combustion, the last two being of the recording type.

Combination Feed Water Heater and Softener

Where condensate from a surface condenser or returned water from heating or drying systems forms a considerable part of the boiler feed supply, it is often necessary to make up the full amount of feed water required by the boiler by adding water which is of a scale forming or corrosive nature. On account of the disproportionately large cost of putting in a softening system of the usual type for this small amount of water, it is usually fed to the boilers without treatment, with the result that scale is formed in the boilers. While the scale so formed is less than the amount that would be deposited if raw water alone were used for the boiler feed supply, the scale is, on the other hand, apt to be hard, and, because of its slow formation, apt to be overlooked, resulting frequently in the unexpected burning of plates and tubes, leakage at seams and tube ends, &c.

This problem has been attacked by the Harrison Safety Boiler Works, North Philadelphia, Pa., in its recently published *Engineering Leaflet*, No. 7, entitled "Combination Feed Water Heaters and Softening Systems," which describes an apparatus designed for plants in which such conditions obtain. This apparatus differs from its well-known Sorge-Cochrane hot process system in that provision is made for heating the two separate water supplies independently and for treating only one with a reagent. The condenser discharge or other returns, after passing over heating trays, pass directly to the pump supply chamber or pure water compartment, whereas the raw water, after heating and mixing with the reagent, falls into a spacious sedimentation chamber and afterward passes through a filter bed before entering the pure water compartment. To insure a continuous supply of water to the boilers in case of clogging of the filters, there is an automatic by-pass which, in case the level of the water in the pump supply chamber should fall below a certain level, will supplement with sufficient hot treated water to supply the pumps.

In a hot process system the "temporary" hardness or carbonates are precipitated by heat, and the only reagent required is that needed for the transformation of "permanent" hardness, such as sulphates, chlorides, nitrates, acids, &c. Due to the use of only one reagent, the management of the apparatus is much simplified, no complicated chemical analyses being required, as where two reagents must be proportioned to the varying requirements of the water. The apparatus has the further great advantage over a cold process system that it performs, in addition, the functions of the feed water heater, which should be installed in any case. For this purpose it can be adapted to any of the various forms assumed by open feed water heaters; that is, it can be used as heater and receiver in connection with an exhaust steam heating system, &c. This pamphlet should prove of interest to engineers having to do with steam plants where scale forming water is encountered.

The Keuffel & Esser Company Celebrates.—On the evening of July 19 the Keuffel & Esser Company, Hoboken, N. J., manufacturer of drawing materials and engineering supplies, celebrated the forty-third anniversary of the founding of the house by a banquet to its employees at Grand View Park, in Jersey City Heights. Interest was added to the occasion by the fact that four employees this year complete their twenty-fifth year of service with the company. Appropriate gifts were presented to them by the firm, and some very handsome testimonials were also given by their fellow workmen. The unusual spectacle of 12 veteran employees, who have completed a quarter of a century's service with the company, occupying the places of honor with the officers of the company was an inspiration to the 500 younger employees present. The affair proved such a success in cementing the interests of all concerned that the banquet will no doubt be made an annual institution.

Texas Coal Deposits

It is estimated by Dr. William B. Phillips, director of the Bureau of Economic Geology of the University of Texas, that the known deposits of coal in the State aggregate approximately 8,000,000,000 tons and of lignite 23,000,000,000 tons. This is enough fuel to keep Texas supplied for 3000 years at a rate of 10,000,000 tons production per annum. M. R. Campbell, of the United States Geological Survey, who investigated the coal and lignite resources of Texas, gives an estimate that tallies with that of Dr. Phillips. During the year 1909 the coal production in Texas was 1,144,108 tons, valued at $2,714,630. The production of lignite in the same year was 715,151 tons, valued at $592,421. It will be years until the production of coal and lignite in the State will aggregate 10,000,000 tons per annum. In addition to the domestic fuel that is used, large importations of coal are made from Oklahoma and Alabama each year. This is mainly due to the fact that comparatively little attention has so far been given to the development of the native resources, largely on account of the lack of direct lines of railroad between the coal fields and the industrial centers of the State.

There are two coal producing districts in the State, one in the northern counties of Palo Pinto, Parker, Wise and Young, and the other in the southwestern counties of Maverick and Webb. The lignite production area includes the counties of Bastrop, Fayette, Hopkins, Houston, Leon, Medina, Milan, Robertson and Wood. It is the belief of geologists that the coal belt in the southwestern part of the State extends for a great distance along the Rio Grande. There is an enormous territory in which no exploration has been made. In some localities of this remote region coal outcroppings are known to exist.

The Canton-Hughes Pump Company's Enlargement

The Canton-Hughes Pump Company, Canton, Ohio, announces that it will build a new plant at Wooster, Ohio, which will double its present output. Owing to the growth of its business the company finds its present factory capacity entirely inadequate. In addition to requiring more room the company feels the need of a type of plant somewhat different from its present one because of the larger work that it is building each year. At present it has contracts for high duty pumping engines weighing from 200,000 to 300,000 lb. The new plant will be equipped for taking care of not only the smaller work, but more particularly the heavier class of work.

Plans for the new plant have not been completed, but it is the intention to build a plant that will furnish employment for 300 men. To secure the plant for that city, the Wooster Board of Trade agrees to furnish a 5-acre site and give the company a bonus of $30,000. The present plant at Canton will be retained. As Wooster is but 32 miles from Canton, the company expects no inconvenience in the operation of the two plants. The Canton-Hughes Company reports that it is receiving orders from a very extended field, a good volume of foreign business coming from the trade centers of Europe and from China, Japan, Australia, South Africa and the Philippines.

Correction.—In the article descriptive of the large manganese bronze water wheel runner printed in *The Iron Age*, July 21, 1910, the address of the Pelton Water Wheel Company was erroneously given as Philadelphia. It should have been San Francisco.

Floor Surfaces for Machine Shops

In a pamphlet entitled Wearing Surfaces for Factory Floors, the Aberthaw Construction Company, Boston, Mass., presents the results of an investigation into the experience of machine shops and other factories with granolithic and wood floors. The inquiry was undertaken because the question has been repeatedly asked by the owners of new fireproof buildings which type of floor is cheapest and best. While the firm whose specialty is concrete construction is satisfied that the granolithic surface, when properly laid under favorable conditions is the cheapest and for all-round service the most durable floor, it undertook to gather testimony from a large number of machine shops, textile and paper mills, architects and engineers and the 118 replies received form the basis of the report and discussion.

Sixty-eight per cent. of the replies came from machine shops, including many of the largest in the region east of the Mississippi and north of Baltimore. Twenty-seven per cent. of these reported no experience with granolithic finish, and hence no basis for comparison; 25 per cent. were in favor of granolithic floors on all considerations as the result of their own experience with both types, while the remaining 48 per cent. offered various criticisms of the granolithic surface, either for its effect on the health of the operatives or for unsatisfactory wear.

Discussing the effect on operatives, the report states that workmen who have to stand still on an unheated cement floor, as at bench or lathe work, may suffer from sore feet and from lameness in the legs, which is attributed to the efficiency of concrete as a conductor drawing heat from the feet and legs and not to the hardness of concrete floors. Two remedies suggested are the use of wooden gratings for men at stationary work to stand on and the heating of concrete floors by hot air ducts or steam pipes laid in them, making the concrete floor slab the radiating surface for the warming of the building, which has been successful in the plant of the Morse Chain Company, at Ithaca, N. Y. Many shops, however, report that there is little or no complaint on the score of hardness.

Regarding wearing qualities, the conclusion is that the success of the granolithic floor is finally a question of good workmanship, as floors laid in certain ways are bound to be dusty, chip badly and be all-round failures. On the other hand, the Aberthaw Company maintains that a granolithic floor can be laid so as to be absolutely free from dust, and to resist all sorts of wear as well as any other type of floor and at much lower cost than a wood top on a concrete slab. In comparing costs, the report says that a granolithic surface can be laid for about the cost of maple top flooring delivered at the site of the work. Thus the wood top is more expensive by the cost of the stringers, planking for the under floor and the fill between the stringers. Granolithic finish laid on the green concrete slab reinforces it and bears part of the compression strains, while the wood top, on the contrary, is a dead weight on the floor slab, thus making heavier slabs and supports necessary and raising cubic foot cost for the entire building. Wear under trucking, which is the most serious cause of complaint from machine shops, is due largely to the practice of using trucks with small, flat faced, square edged wheels, which will cut up any surface. Rounded faces are recommended as a partial remedy, as are also rubber tires or wheels of hardwood, and where there is very heavy trucking the Aberthaw Company has used steel plates or steel tracks embedded in the fresh concrete successfully.

The common difficulty of making repairs to a granolithic surface is admitted, but the contention is made that with cement floors of the best quality the need of repairs will be so slight that this drawback need hardly be considered. Attaching machines to the cement floor is easily and inexpensively done by those who are used to the work, and the report holds that the usual objections on this score are hardly practical or reasonable.

The choice of a floor surface for any particular building is a question to be decided largely by the circumstances in each case. If the conditions are such as to permit laying a granolithic surface in the proper manner, the Aberthaw Company holds that this surface will give in the long run more and better wear, but if the cement finish is put on carelessly poor results are pretty certain to follow. Where an absolutely dustless floor is required and construction conditions are unfavorable to good cement work, or the product is so delicate that dropping it on a masonry floor would break or chip it, the wood floor surface is the wiser choice, in spite of its higher cost and its increasing the fire risk and insurance rates.

The Simonds Mfg. Company's New Plant.—The Simonds Mfg. Company, Lockport, N. Y., has awarded contracts for the construction of the greater part of its new saw factory, comprising six buildings. The Durolithic Company, Buffalo, N. Y., will put in the foundations and furnish the reinforced concrete work, while the Kenwood Bridge Company, Chicago, will furnish the structural steel work. These buildings are as follows: Gas producer house, 30 x 325 ft.; steel melting department, 80 x 325 ft.; three manufacturing buildings, of which No. 1 is 110 x 325 ft. and Nos. 2 and 3 are each 60 x 120 ft.; office building, 45 x 85 ft., two stories. The office building will be constructed of reinforced concrete and face brick, with stone trimmings, while the other buildings will all be of concrete, steel and brick, with reinforced tile roof, metal sash, rolling steel doors and sheet metal louvers.

The second International Congress of Refrigeration will be held at Vienna, Austria, October 6 to 11, 1910. The American Association of Refrigeration, of which J. F. Nickerson, 315 Dearborn street, Chicago, is secretary, is making efforts to increase its membership with a view to securing the third international congress for the United States. A Senate joint resolution passed by Congress in June authorized the President of the United States to invite the congress to hold its next meeting in this country. F. W. Pilsbry, 1660 Monadnock Block, Chicago, is chairman of the Committee on Transportation, which is working up representation from this country to the Vienna meeting.

The United States Stamping Company, Moundsville, W. Va., has acquired the Stewart Stamping Company, also of Moundsville, and as the two properties adjoin they are now being conducted as one plant. The combined factories give employment to 650 hands and are among the largest producers of white lined enameled ware. Both are under the management of J. M. Sanders, president of the United States Stamping Company.

The old red cedar rail fences of Middle Tennessee now furnish the world's main supply of cedar pencils, according to information received at Nashville from large pencil manufacturers. The farmers in that section are selling their fences for what their forefathers would have considered fabulous sums. The price received for such a fence will build four wire fences of the same length.

Blast furnace No. 4 of the Carnegie Steel Company at Youngstown, Ohio, was blown out last week for relining and repairs. The other five furnaces at the Ohio Works are all in blast.

The Mexican Market

A Market Which Should Be Properly Cultivated

BY WM. H. WONFOR.

If some one put the question to the general run of men in the street, "What is your impression of the industry of Mexico?" I think the majority would answer, "A big mining country." If you approach a manufacturer with an idea of selling his goods in that country you are often thought visionary and your scheme is dismissed either as another "impracticable" idea or one designed to separate him from hard won dollars. After all, there is a romance about business, and those of us who have burned up gray matter with the midnight oil in studying ways and means to increase the sale of our employers' products are often surprised and pleased that a statement, perhaps discovered by chance, opens up a field that had hitherto been thought sterile.

The Diversity of Climate and Products

To the student of business, on his first visit to the country, the diversity of climatic conditions in Mexico and the varied aspect of the landscape are very interesting and productive of much thought. He hears and sees things that are old and new. Traveling along the railroads he sees a group of buildings located far away from the station in the midst of a plain, and there a cluster sticking to the side of a mountain with apparently no cause for being there than that explained by the dump pile that to the unpracticed eye looks like a landslide that has met with an obstruction in its course. Again he meets a freight train loaded with machinery of all kinds, steel beams and pipe, all pointing to the development of a country whose riches are hardly known.

The buildings he saw clustered in the plain are the homes of the owner and workmen on a hacienda, whose size often triples that of the much extolled, large wheat farms of our own Northwest. The diversified nature of the country in which this hacienda may be situated is illustrated in the crops raised. Here the owner's effort may be directed toward cattle; there it is sugar; again it is part cotton; a few hours' distant coffee, pineapples and bananas are seen, which change as one climbs to higher altitudes to corn, beans and the general line of garden vegetables found in the farms scattered along the railroads between our own Atlantic seaboard and the Mississippi River. In fact, Mexico can supply any climate to order, from the perpetual snows of the highest hills to the tropical heat of the *tierra caliente* and the change can be made, in some parts of the country, in a few hours.

The manufacturers of farm implements in this country long ago woke up to the fact that in Mexico they had a market at their doors and took the opportunity to develop their interests there with satisfactory results. The mining machinery men also knew of the field early in the game, and those of them who went at it in the proper way are doing a satisfactory business.

Special Products of Mexican Energy

That Mexico raises a fine grade of cotton is not generally known. The Laguna district is covered with cotton farms, and the entire product is sold to the large spinning and weaving mills located mostly in the southern part of the republic. Sugar is another product that receives considerable attention. The annual crop ranges from 52,000 metric tons for the State of Morelos to 400 or 500 metric tons from the States with a smaller average and the greater part of it is consumed in the country. Such products as soap, blankets, rubber, alcohol, shoes and clothing, are manufactured on a large scale, while there are the usual numerous smaller industries to be found in nearly every country.

These various industries require machinery and other supplies that American manufacturers produce. Taking the cotton weaving industry as an example, the articles required to supply this trade from the initial motive power to the finished cloth cover a very wide range. When it is considered that many of these plants are practically isolated, on account of the necessity of being near to water power, it will be readily seen that a cotton manufacturing company represents a little government in itself. It not only has to buy for its own needs, but for the daily needs of its several thousand workmen. It is the custom of these large textile manufacturers, as well as the large mining companies and owners of haciendas, to organize a store for the benefit of their employees, supplying the needs of the body, both inside and out. Many of the articles seen on the shelves are familiar household furnishings in the United States. That this business is not a small one can be judged by the fact that it pays over $1,000,000 gold in direct taxes to the general government annually, and this does not take into consideration the local taxes paid to the State governments of the various sections in which the factories are located.

The manufacture of soap is so important as to be specially mentioned. The factory in Torreón is possibly larger than any we have in the United States. The quality of the product compares favorably with that of our own country, and it is sold to all classes of people. The small cake of soap sold for 1 or 2 cents to the peons and the highly perfumed cake that is a delight to the senoritas may be found in the same shop and are both made in the same factory. The manufacture of rubber from the guayule plant is another industry that has made marked strides in a very short time, and the finished product may be seen almost any day either rolling along our streets as automobile tires or protecting our feet in the form of rubber overshoes and boots.

A Land of Big Enterprises

Mexico is already a country of big enterprises. Capital is awakening to its opportunities, and American, English, French and German industrial engineers are opening their eyes to possibilites that are unusually large. An incident may be cited in one project, now in course of construction, for which the initial order for electrical machinery and supplies amounted to over $8,000,000. Yet the contrasts in Mexico are very great. In many places antiquated methods are used, which, though antiquated from the standpoint of an American, may be nearly as effective as perhaps the more modern ones seen in another location. It is the adaptability of the people to the means at hand, and which have been thoroughly studied through centuries of use. The home made plow or irrigation pump is the outcome of earnest thought in the time when the modern steam plow or irrigation pump was not known, but after being convinced of the value of modern methods the Mexicans adopt the latter without hesitation. They are slow to change until convinced, but when convinced of the merit of an article it is quickly accepted and put to use.

Points for Salesmen

In the point of convincing the people of the value of modern methods, it is well to make haste slowly. It is not practicable to do business with them after the approved American salesmen's method of three towns a day, as they do not understand that way. A Spaniard's or Mexican's "manana" often means a desire to familiarize himself with your article and yourself, and not, as popularly supposed, to put off a decision indefinitely. They are keen business men in every sense of the word, and our greatest mistake has been

in our method of approaching them. Too much stress cannot be laid on the necessity of a knowledge of Spanish. The salesmen who are making a success in Spanish-American countries are those who give the people the courtesy of believing that their opinions are of value, and that they have a right to use their own language as we would insist on a foreigner using ours when he attempts to sell goods to us.

To illustrate the foregoing observations, a comparison may be given of the methods of two salesmen. One, an American salesman, whose firm manufactures a product that is a household word, was grumbling around the hotel because his interpreter had not shown up that morning, and he was anxious to get away. "Why don't you learn Spanish and do away with the annoyance?" he was asked. "What's the use?" he replied; "I can usually get an interpreter." In the same hotel was a German salesman who also sold a product of general use. He needed no interpreter, being a university graduate and speaking English, German, French and Spanish with fluency. The German is received in the homes of his customers and is looked upon as a friend. It is obvious which of the two salesmen would be more successful.

A very lively contempt is felt by the people for a representative of any well-known house who goes around with an interpreter and which incidentally reflects on the house itself. If you have an intricate article to sell or desire to offer special inducements, without any knowledge of the language, you can never be entirely sure that you are not laying up trouble for yourself by your interpreter's lack of technical knowledge. The American manufacturer, however, is now waking up to the fact that he has a large market at his door, and one that is ready and willing to give a hearing to any good proposition that may be made to it. But we must not lose sight of the fact that this market must be studied, and that due consideration must be given to methods that the people have every right to believe are as good as our own.

Large Leather Belts

What is said to be the largest belt ever made in this country was recently shipped by the Estate of E. R. Ladew, 82 Fulton street, New York, to the Southwestern Milling Company, Kansas City, Mo. The belt is 120 ft. long, and will run over a driving pulley 18 ft. in diameter to a driven pulley 8 ft. 6 in. in diameter at a speed of 85 rev. per min., transmitting 2000 hp. The belt is made of three thicknesses of leather, is 96 in. wide and ¾ in. thick, weighs 3500 lb., and in making it the hides of 275 steers were used.

Geo. Rahmann & Co., belt manufacturers, 6 Ferry street, New York, also state that, despite the contentions of the advocates of the direct motor drive, they are receiving orders for some very large leather belts. They have just completed one 5 ft. wide, three-ply, and about 100 ft. long. This belt was made for the American Bronze Powder Company, operating one of the largest powder plants in this country, and the order was given at the instance of a prominent engineering firm. The firm claims that there never have been so many large belts in work as at the present time, which would show a tendency toward the more increasing use of the efficient and economical leather belt as a power transmitter.

The Eastern Pig Iron Association.—The July meeting of the Eastern Pig Iron Association took the form of an excursion to the Port Henry and Mineville, N. Y., properties of Witherbee, Sherman & Co., Inc. The company had between 80 and 90 guests on the trip, a special train leaving New York Tuesday night, July 26. Wednesday morning was spent in visiting the Northern Iron Company's blast furnace and the electric power house at Port Henry, and in the afternoon the iron mining and concentrating operations at Mineville were inspected. After a short meeting of the Eastern Pig Iron Association Wednesday evening at Port Henry the party took train for New York.

The Sierra & San Francisco Power Company

The Sierra & San Francisco Power Company, San Francisco, Cal., has authorized the issuance of first mortgage bonds in the sum of $6,500,000 for the purpose of enlarging its plant and so extending its facilities that it may be enabled to supply prospective purchasers with all the power required. It is proposed by the company to expend $1,000,000 in the next three years toward the construction of a distributing system in San Francisco and elsewhere, making an additional equity over the first mortgage bonds. The company has purchased the entire power plant of the United Railroads of San Francisco, and has entered into a 44-year lease to supply that company with power for the operation of its lines. The district served with power by the company includes the counties of San Mateo, Santa Clara, Alameda, San Joaquin, Tuolumne, Stanislaus and Calaveras.

The principal power station is on the Stanislaus River north of Sonora, and the transmission line passes through Vallecito, Angels Camp, Copperopolis, Tracy and Mission San José, thence around the southern end of the bay of San Francisco and along the east shore. There is an effective head on the Stanislaus River, and the station has a present capacity of 46,000 hp. Two other plants bring the total hydroelectric capacity up to 50,000 hp. An auxiliary steam station in San Francisco, with a capacity of 12,500 hp., makes the total present generating capacity 62,500 hp. The steam capacity is to be increased to 28,500 hp. next year, and the total generating capacity will then be 78,500 hp.

The company intends to develop, when warranted, additional water rights on the Stanislaus River that will enable it to more than double its present hydraulic capacity. It is now delivering 12,000 hp. to San Francisco over its transmission line, and this is soon to be increased to the full amount required by the railroad company for the operation of its system. The company has control of sufficient rights of way to enable it to increase its transmission system to a total capacity of more than 90,000 hp.

A New Electric Furnace Installation.—The Riverside Metal Refining Company, Connellsville, Pa., is installing two electric furnaces. These furnaces were patented by Raymond S. Wile, formerly with the American Sheet & Tin Plate Company, Pittsburgh, but connected with the Riverside Company for the past 14 months. They are of the shaft type, with one carbon through the bottom, this being the permanent carbon, and the other one through the top being movable. The slag used is on the bottom, with the top carbon immersed in it to the depth of 3 or 4 in. The heavier metal falls to the bottom, while the dross stays on the top of the slag. The furnaces are used for smelting tin and terne drosses and are 20 in. in diameter, taking care of about 2 tons of dross per day. They can be used individually, in series, or in a voltage and current range of wide dimensions, both on account of the transformers used and the furnaces themselves. Current is obtained from the West Penn Railways Company.

The Niles Forge & Mfg. Company, Niles, Ohio, states that its recent increase in capital was made to provide some money owing to its steadily increasing business. No new additions or improvements to its plant are contemplated at this time.

A New Waterbury Automatic Screw Slotter

The automatic screw slotting machine shown in the illustration, built by the Waterbury Farrel Foundry & Machine Company, Waterbury, Conn., embodies several new features, the chief purpose is to secure a maximum of time for the sawing and a minimum for handling the work to and from the sawing position.

The screw blank is held rigidly while the slotting is taking place, the frame that carries the saw and its arbor being of ample proportions to avoid chattering. It has sensitive adjustments both side to side and front to back and locates accurately the position of the saw with respect to the screw head. There are other adjustments operated while the machine is running for determining the depth of the slot and allowing the maximum time for slotting, even though the slots are of varying depths.

The saw, which is 2¾ in. in diameter, with a hole not smaller than ¾ in., is held on its spindle between two clamps by a nut. Saws slightly larger than standard may be used, as they can be ground down. When the saws are changed the spindle is prevented from revolving while the clamping nut is being loosened or tightened by a pin which is inserted temporarily in the driving gear or pulley. The saw spindle runs in bronze bushings, that next the saw being tapered and split for taking up any wear.

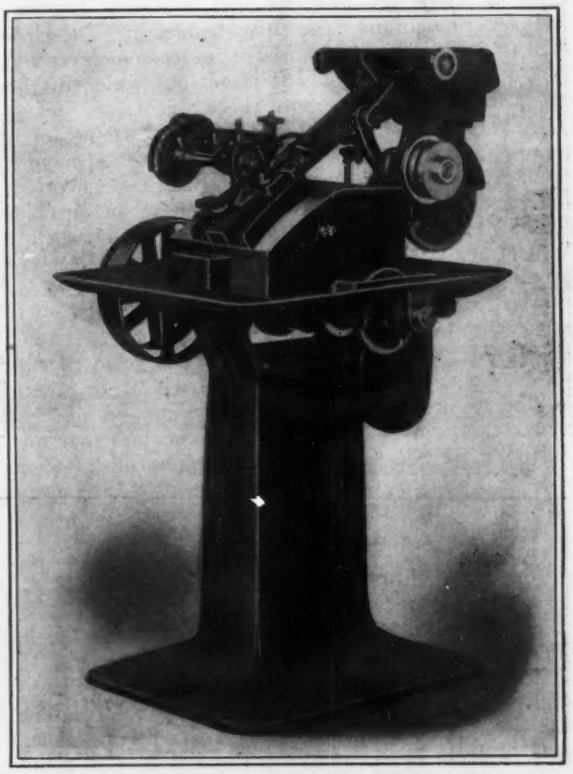
In operation the blanks are placed in the hopper, where they are caught by their heads in a blade which has a slot along its top a little wider than the body of the blank. The blade swings vertically through the center of the hopper, and when in its lower position is parallel with the bottom. As it is elevated through the mass of blanks some get caught by their heads and are carried to the upper position, which is an extension of the inclined chute, where they slide into the chute. Near the point where they leave the blade is a rapidly revolving toothed wheel adjusted so that any blanks which attempt to enter the chute excepting in the proper position are thrown back into the hopper. This leaves the entrance to the chute clear and prevents clogging. The chute cover is hinged, so that it can be swung up for removing any blanks that may become lodged. At the foot of the chute the blanks enter the carrying dial, which is 2 7-16 in. in diameter and ½ in. thick. If a blank becomes held half in the dial and half in the chute a slight special motion of the dial agitates the column of blanks and starts the feed after the loss of only one revolution of the machine. The carrying dial has V notches in its periphery which convey the blanks from the chute to the slotting point. After being slotted the blanks are carried a little further and delivered into their receptacle.

The hopper blade is made with a removable top containing the pick-up slot. The top is changed for different sizes of screws. The hopper is driven by a round belt from the machine itself through cone pulleys, which provide for speeding the hopper to suit the work. The hopper feeding mechanism is provided with simple adjustments to adapt the machine not only for work which is done in long runs, but short ones as well. To shift from one size of blank to another it is necessary to replace two pieces only. The machine handles blanks with short shanks equally as well as those with long ones up to the limit of its capacity, which is 1½ in. long under the head. The largest diameter or shank allowed is ¼ in. Blanks having a length of shank equal to one diameter have been successfully fed by the hopper and slotted in the machine.

A special feature of this machine is that the sizes of the head and the slot determine the machine to be employed rather than the diameter of the screw. For example, a ⅛-in. screw may be made with a very large head and slotted on this machine, a ¼-in. screw with an extraordinarily large head might require a larger size machine, while a ¼-in. screw with an ordinary head would be handled easily.

The machine is so arranged that the chips and finished blanks are delivered into separate receptacles. The chip receptacle is the small removable box shown in the illustration, and the screws are delivered into a pan placed at the right of the box. Provision is made for lubricating the blanks and the saw while the slotting is being done. The lubricant is pumped from a small tank located below the bed by a small geared pump and delivered through valves and piping to the operating point. From there it flows with the chips into the chip box, where the chips sink to the bottom and the lubricant flows over the sides, draining back on the table and into the tank. The tank is readily removable for cleaning.

The main drive for the machine is through a two-step cone pulley. If the countershaft runs 270 rev. per min. the saw can run at either 1215 or 405 rev. per min. and the machine at either 90 or 60 rev. per min. By varying the speed of the countershaft these speeds are changed proportionately. The countershaft has 10 x 2½ in. tight and loose pulleys. The power for driving the saw is obtained through a belt from the countershaft to a pulley 4 in. in diameter with a 1½-in. face, which is geared 3 to 1 to the saw spindle for steel work, while for brass work a pulley of the same size is located on the saw spindle itself. The floor space required is 30 x 34 in.; the weight of machine 600 lb., and weight of countershaft 225 lb.



The New Automatic Screw Slotting Machine, Built by the Waterbury Farrel & Foundry Company, Waterbury, Conn.

The National Metal Trades Association has issued in a volume of 174 pages a synopsis of the proceedings of its twelfth annual convention, held at Hotel Astor, New York City, April 13 and 14, 1910. This volume possesses special interest in the reproduction in full of the exceedingly interesting papers which were presented on that occasion. The papers are fully illustrated. The entire work reflects much credit on the commissioner, Robert Wuest, New England Building, Cleveland, Ohio.

A Large Coal Tipple and Washer

The New Searles Plant of the Alabama Consolidated Coal & Iron Company

The rebuilding of the tipple and coal washing plant of the Alabama Consolidated Coal & Iron Company, Birmingham, Ala., at its Searles property, following the fire of last year, has resulted in a tipple and washer which are considered the most up-to-date in the South. The capacity of the plant is also exceptional, as it can take care of and wash 3000 tons of coal in 10 hours. The accompanying illustrations give a good idea of the arrangement and the extent of the Searles operation and the relation of the tipple and washer to the coke ovens.

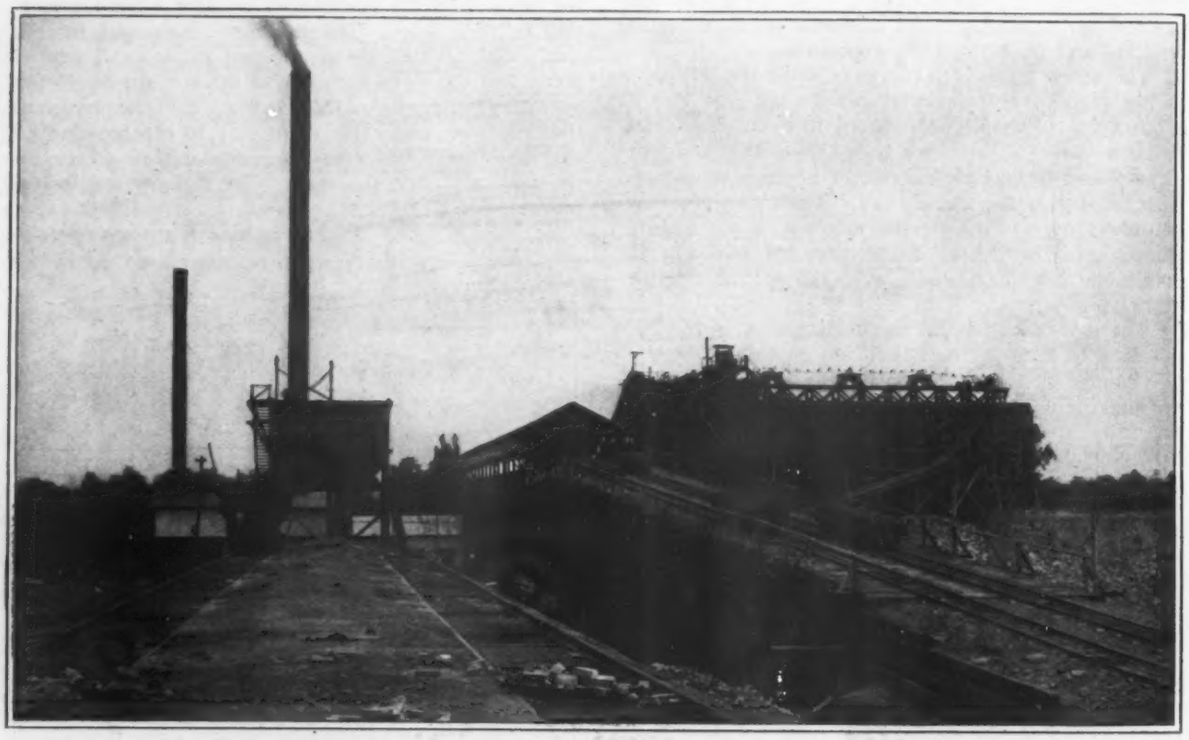


Fig. 1.—Coal Tipple and Dry and Washed Coal Bins of the Alabama Consolidated Coal & Iron Company's Searles Plant.

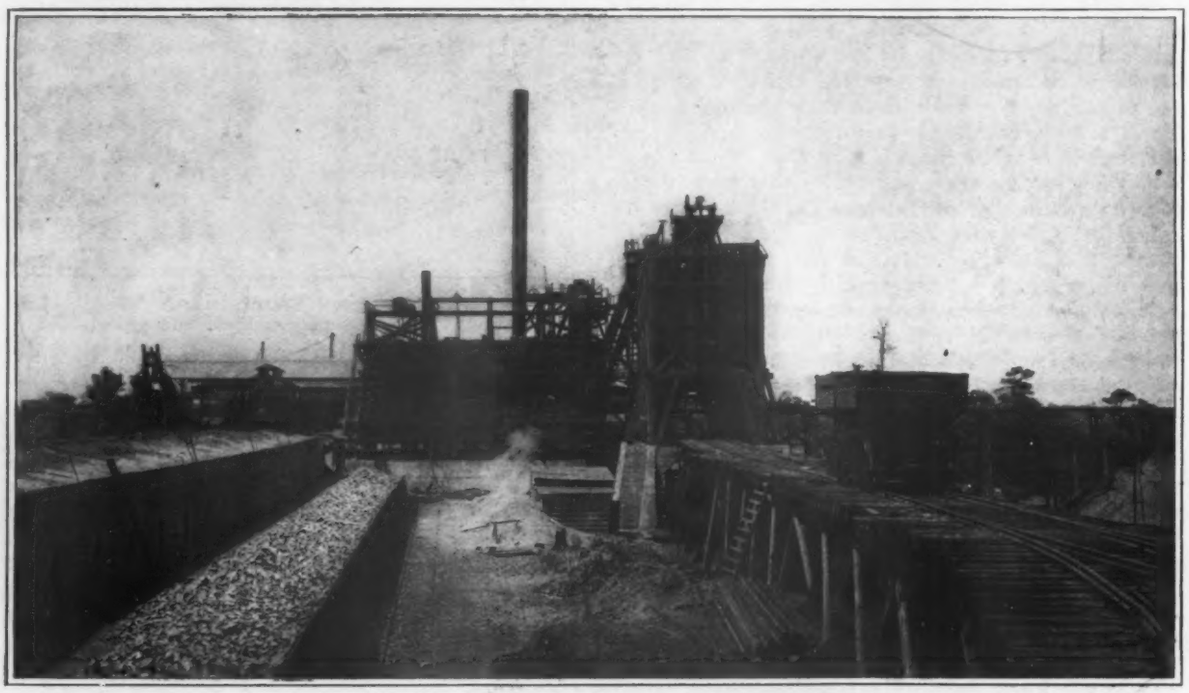


Fig. 2.—Washer and Coal Bins, with Tipple in the Background. A View at Right Angles to That in Fig. 1.

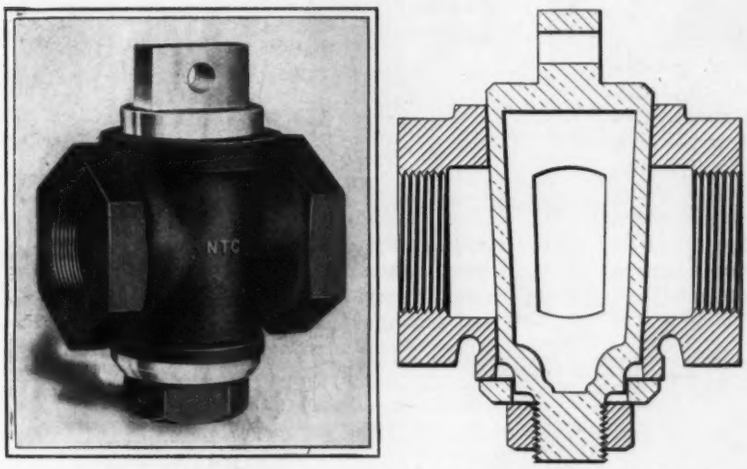
For 22 ft. from the ground the wet coal bin, dry coal bin and jigs are built of solid reinforced concrete. Arriving from the mines the coal first passes over scales and then to a Phillips crossover tipple, where it is dumped. Passing on a shaking screen the coal is delivered into a feeder and the fine portion goes directly to a boot at the bottom of the dry coal elevator. The coarse is fed into a Bradford breaker, which removes a large portion of the slate and bone. From the Bradford breaker the coal passes to another screen, the undersize going into the boot mentioned above, and the oversize into a Jeffrey hammer pulverizer, which discharges also into the same boot. The coal is then elevated to the top of the dry coal bin, which has a capacity of 1500 tons, and from the dry coal bin is fed into the jigs, of which there are eight, each with an easy capacity of 30 tons per hour of washed coal. Each

pair of jigs is served with a slate elevator, all of the latter discharging on a belt conveyor. After washing, the coal goes into a settling tank 56 ft. long, also made of solid concrete; thence it is elevated to the wet coal bin, which has a capacity of 2500 tons. From this bin it is drawn either into larries or into railroad cars, as may be desired. Both wet and dry bins are controlled as to distribution of coal by trough conveyors.

To prepare for emergencies the company built alongside the settling tank a supplementary concrete tank capable of holding all the water contained in both jig boxes and settling tank. The supplementary tank is controlled by two powerful 6-ft. Lawrenceville centrifugal pumps, each driven by a Buckeye engine. In case of a breakdown of the wet coal elevator, or of any part relating thereto, the valves are opened and both jig boxes and settling tank are drained in a few minutes. As soon as repairs are made all the water and coal will be picked up by the centrifugal pumps and delivered again to the jig boxes and settling tank. The machinery is all driven by a Lane & Bodley Corliss engine of 400 hp.

The National Tested Iron Service Cock

The accompanying illustrations show exterior and sectional views of a 1¼-in. special tested iron service cock which the National Tube Company, Frick Building, Pittsburgh, Pa., has brought out especially for use on the street service mains of gas companies or for hard mill service.



Exterior and Sectional Elevations of No. H-1312 Tested Iron Service Cock, Made by the National Tube Company, Pittsburgh, Pa.

Brass and iron are both used in the construction of this cock, the line between the two metals being very clearly indicated in the sectional elevation at the right. The plug and the washer are both made of brass, and the former is ground in by special machinery. The advantage claimed for this type of construction is that the bearing parts are all brass to iron, which prevents corrosion. The hub is closely joined to the body and as will be noticed from the engravings, the whole cock is very compactly built, thus reducing to a minimum the probability of wrenching any part out of shape when the pipe is being made up.

When the cock is assembled it is tested with air pressure under water, which insures a tight seal. Another advantage possessed is that of cheapness, as the price is considerably less than that of an all-brass cock and it is stated that for some purposes the service given is even superior to the higher priced model.

The Longmead Iron Company, Conshohocken. Pa., has recently completed the installation of a nipple department. It is now placing on the market wrought iron nipples, standard and extra heavy, black and galvanized, in sizes ⅛ to 3 in. in diameter and ¾ to 12 in. long, with the usual variety of threads. A price-list covering the entire range of sizes has been prepared for distribution.

The New Bureau of Mines

George Otis Smith, director of the United States Geological Survey, who has also been made acting director of the newly established Bureau of Mines in the Department of the Interior, has issued a circular relative to the work of the new bureau. Its substance is given below.

The act establishing the Bureau of Mines became effective July 1. As originally approved, it contemplated the transfer of the entire Technologic Branch of the United States Geological Survey, including investigations of mine accidents, fuel and structural materials, to the Bureau of Mines; but the Sundry Civil Appropriation act amended the law so that the structural material investigations were transferred to the Bureau of Standards, Department of Commerce and Labor. The investigation of mine accidents and the work of fuel testing together with the fully equipped testing station at Pittsburgh go to the Bureau of Mines. The work of the Bureau of Mines for the first year will be a continuation and extension of that carried on by the Technologic Branch of the Geological Survey. In all $310,000 was appropriated for mine accident investigations. For analyzing and testing coals, lignites, &c., $100,000 was appropriated.

The publications of the Geological Survey relating to mine and fuel investigations, those prepared by the Technologic Branch, will in future be distributed by the Bureal of Mines. The publications relating to structural material will continue to be distributed by the Geological Survey. The first of the Bureau of Mines bulletins, the "Volatile Matter of Coal," by H. C. Porter and F. K. Ovitz, will be published in the next few months. Then will follow "Coal Analyses," by N. W. Lord and J. S. Burrows; "Final Data Regarding Steam Tests," by L. P. Breckenridge; "North Dakota Lignite as a Boiler Fuel," by D. T. Randall and Henry Kreisinger; "Producer Gas Tests in 1905-1907," by R. H. Fernald; "The Coke Industry as Related to the Foundry," by Richard Moldenke; "Coals for Illuminating Gas," by A. H. White and Perry Barker, and "Pertroleum for Combusion Under Steam Boilers," by I. C. Allen. These publications, when issued, can be obtained by addressing the Director of the Bureau of Mines at Washington.

The National Eight-Hour Law Construed

Attorney-General Wickersham, on request of the Secretary of the Navy, has given a ruling on the eight-hour clause of the act appropriating money for new battleships. He holds that it applies only to work actually done in the Government navy yards, and not to work on machinery and armor done outside by private contractors. This ruling will be a surprise to labor men throughout the country, who hailed the insertion of the eight-hour provision in the bill as a great victory in regard to shops not controlled by the Government. The attorney-general says it is clear that the act "must be construed to apply simply to work done upon the vessel itself at the place where it is built and not as applying to the manufacture of machinery or other material elsewhere which is to enter into the construction of the vessel."

Coal and Ash Handling in an Office Building

Modern Methods Employed in Chicago's Latest Skyscraper

The congested traffic in the business streets of Chicago made necessary the construction of an underground system of tunnels which will permit the handling of a large amount of material. The next step was to devise ways and means of receiving and distributing the materials from the tunnels to the buildings in the quickest and most economical manner. One thing which every building needs for heat or power is coal, and this requires machinery which will handle both the coal and the ashes. In the new building erected for the People's Gas, Light & Coke Company, Chicago, Ill., machinery for handling these materials has recently been installed by the Stephens-Adamson Mfg. Company, Aurora, Ill., who also designed and manufactured the entire equipment, including the bunkers, hoppers, chutes and transmission and conveying machinery. Fig. 1 shows a front elevation of the boilers with the cross conveyor and bunkers, Fig. 2 is a section through the bunkers, Fig. 3 illustrates the telescoping elevator for handling the ashes, and Figs. 4 and 5 are views of the horizontal and vertical conveyor bucket runs.

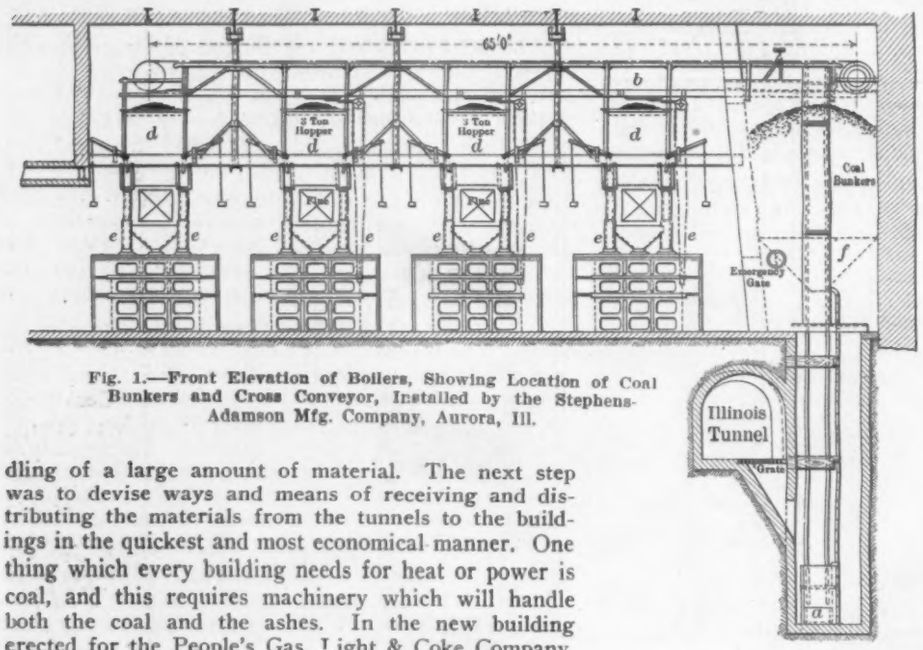


Fig. 1.—Front Elevation of Boilers, Showing Location of Coal Bunkers and Cross Conveyor, Installed by the Stephens-Adamson Mfg. Company, Aurora, Ill.

The coal is delivered to the building in steel cars running in a branch of the Illinois tunnel 45 ft. below the ground level. These cars are emptied on a steel bar screen in the tunnel floor through which the coal passes into the concrete chute shown in Figs. 1 and 2. The chute discharges into the steel boot *a* of the S-A Gravity Discharge Bucket Elevator and Conveyor, which is equipped with V-shaped steel buckets, bolted every 2 ft. to two endless strands of steel bushed roller chains. When traveling horizontally, as in Fig. 4, the rollers run on steel tracks and support the buckets, which act as flights and push the material along in a steel trough. When traveling vertically, Fig. 5, the buckets automatically adjust themselves and lift the material, and the chain rollers running between two angle iron tracks act as guides.

The coal is first elevated 27 ft. and then conveyed horizontally to a point 44 ft. distant, passing directly under the coal bunkers, Fig. 2, which have a capacity of 200 tons. It is then elevated 21 ft. and conveyed horizontally over the coal bunkers. There are gates *c* in the upper horizontal run, which may be opened to allow the coal to drop into the bunkers for storage. Should it be necessary, however, to deliver the fuel directly to the boilers, it can be done in the following way:

Running at right angles to the S-A gravity discharge elevator and conveyor, and above and in front of the boilers is an S-A steel flight conveyor 65 ft. long, Fig. 1. This machine consists of steel flights fastened every 2 ft. to two endless strands of the builder's standard chain, running over sprockets at the ends of the machine. The flights push the coal along in a steel trough which is provided with sliding gates operated by a rack and pinion which are located over the 3-ton

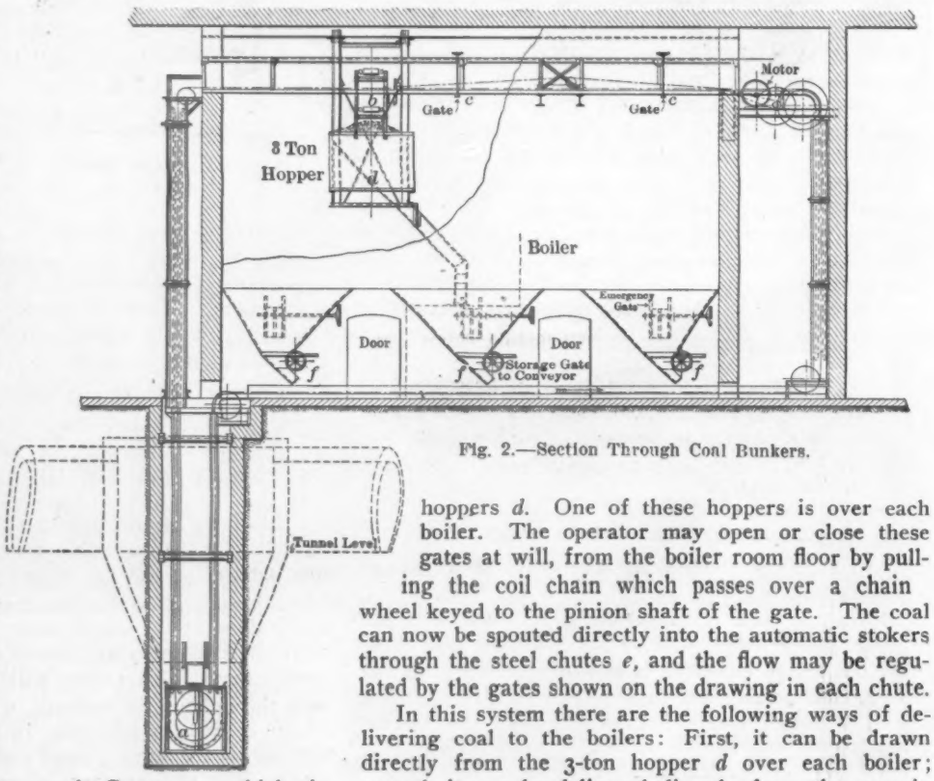


Fig. 2.—Section Through Coal Bunkers.

hoppers *d*. One of these hoppers is over each boiler. The operator may open or close these gates at will, from the boiler room floor by pulling the coil chain which passes over a chain wheel keyed to the pinion shaft of the gate. The coal can now be spouted directly into the automatic stokers through the steel chutes *e*, and the flow may be regulated by the gates shown on the drawing in each chute.

In this system there are the following ways of delivering coal to the boilers: First, it can be drawn directly from the 3-ton hopper *d* over each boiler; second, it can be delivered directly from the cars in the tunnel to the boilers; third, since the first conveyor passes under the storage bunkers *f* the coal may be drawn from them and elevated and conveyed again to the flight conveyor and thence into the 3-ton hoppers;

and fourth, there is an emergency gate in each bunker through which the coal can be delivered to wheelbarrows and wheeled to the boilers. It is intended to have coal in the storage bunkers at all times, so that

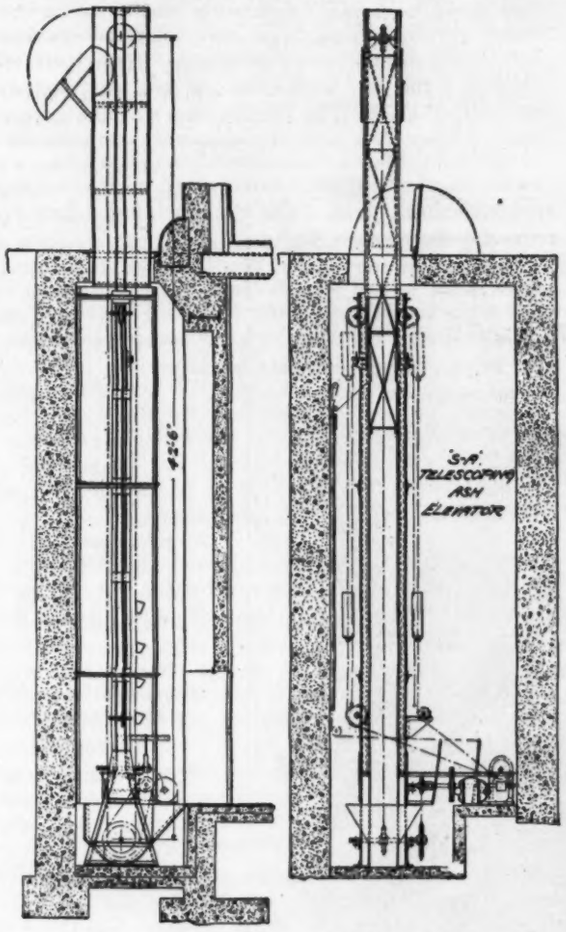


Fig. 3.—Ash Handling Machinery, Extended and Telescoped.

there will be no inconvenience if the tunnel company is unable to deliver coal for several days.

The ashes are disposed of by the S-A telescoping ash elevator shown in Fig. 3. This machine is equipped with malleable iron buckets attached to an endless strand of chain. The ashes are dumped into the elevator boot and elevated to a hight of 43 ft., where they are discharged into wagons and hauled away. The entire steel casing and elevator machinery of this equipment telescopes to a point below the alley level when not in use. It is raised and lowered by counterweights

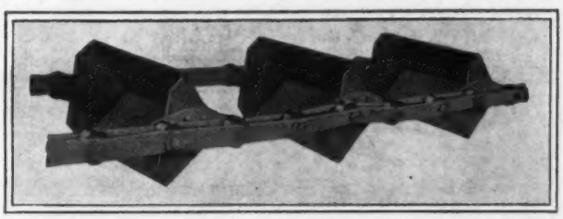


Fig. 4.—A Horizontal Run of Conveyor Buckets.

and electric hoists, the same motor furnishing the power for elevating the ashes.

Stanley G. Flagg & Co. expect on or about September 15 to remove their offices in Philadelphia, Pa., to the new Morris Building, 1421 Chestnut street. The offices have since 1882 been located at the firm's Philadelphia plant at Nineteenth street and the Philadelphia & Reading Railway subway, but this location is not central. In the new offices in the Morris Building will be gathered all the executive staff, including sales departments. The firm manufactures malleable iron and small steel castings.

The Morris & Bailey Steel Company's Improvements

The Morris & Bailey Steel Company, Pittsburgh, is making improvements in its plant at Wilson Station, Pa., in addition to those mentioned in *The Iron Age* of July 14. Its main building is being extended and reconstructed, brick walls and slate roof taking the place of sheet iron construction. The floor is being changed from wood to asphalt block. Steel sash is also being used for the windows, allowing a maximum amount of light which is necessary in the manufacture of the company's highly finished product. The hot rolled warehouse has been extended 100 ft. Additional power has been installed, amounting to 700 hp. in water tube boilers, and 500-hp. electric current has been contracted for to be used for motors. These motors will be used to drive a number of finishing mills, including two 10-in. mills, just received. The pickling facilities have been doubled, with the installation of new automatic machinery.

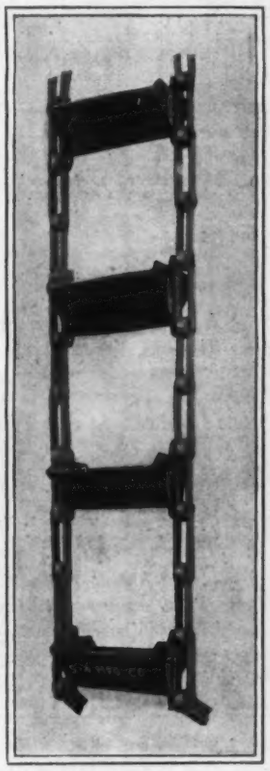


Fig. 5.—A Vertical Run of Buckets.

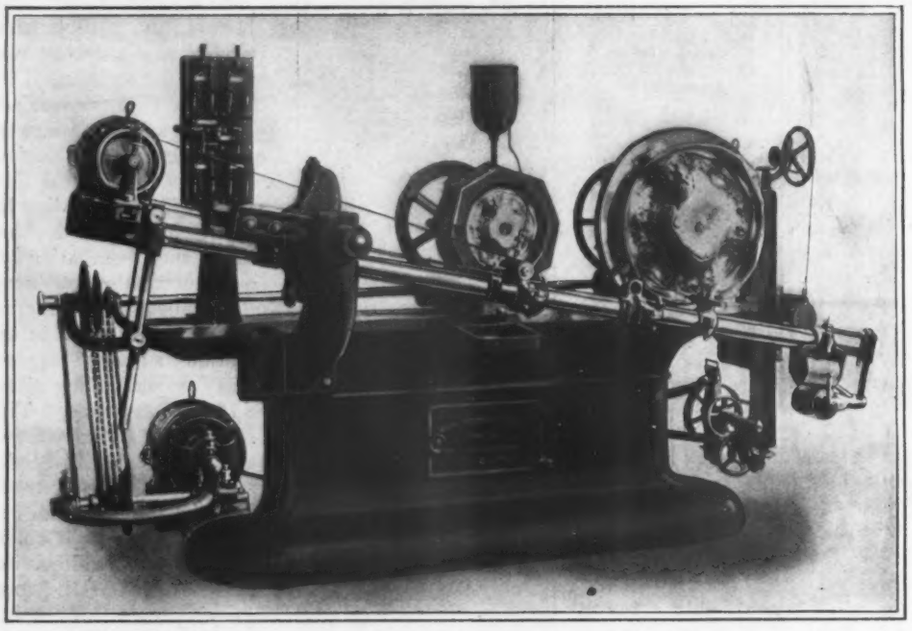
Within a short time the company will have in operation its new 36-in. plate mill for cold rolling plates up to 30 in. wide. This mill will be the most powerful of its kind ever built, and will supply a demand for the finest grade of deep drawing cold rolled material in widths not hertofore made, the company's present limit being 22 in. wide. This material, considering width, will be noteworthy for accuracy to gauge, fine finish and drawing ability, and will be used largely for automobile stampings and other fine work. To take care of it after rolling, new machinery has been added, including heavy shears and flatteners. These additions will increase the output greatly, and the company will be in good condition to handle its trade with more promptness.

American Peat Society.—At the fourth annual meeting of the American Peat Society, in session this week at Ottawa, Canada, the list of papers includes the following: "The Development of Gas Producers for Peat and Lignite," by Prof. R. H. Fernald, United States Bureau of Mines; "The Future of the American Peat Industry," by William Eichhoff, Erie, Pa.; "The Latest Developments of the Akerlund Gas Producer," by the Gibbs Gas Engine Company, Atlanta, Ga.; "The Work of the Peat Engineering Company," by F. J. Bulask, Toledo, Ohio; "A Well Equipped Peat Fuel Plant and How to Operate It," by Philip Heseltine, Detroit, Mich.; "Peat Litter," by J. Bordollo, New York. Prof. Charles A. Davis, United States Bureau of Mines, was expected to give some account of the peat investigations of the United States Geological Survey and of the organization and work of the new Bureau of Mines. The president of the society is Dr. Eugene Haanel of the Department of Mines, Ottawa.

A Motor Driven Engraving Machine

An Ingenious Device for Forming Dies Mechanically

The work of die making as ordinarily performed demands the most painstaking manual skill. Following the intricate designs of the patterns from which the dies for stamping sheet metal, silverware and hardware are reproduced was formerly thought to require an accuracy and refinement of tooling which could not be duplicated by any machine. While this may still hold good for the last finishing touches on the highest quality of dies, engraving machines are now made which relieve the skilled hand of a large portion of its former tedious labor and preserve its craft fresh for the finest work. Among the machines that will turn out a very creditable product of tooling without the intervention of any manual agency is the motor driven mechanical engraving machine, illustrated herewith, which was devised and built by W. A. Wauman and is now manufactured and marketed by the Keller Mechanical Engraving Company, 570 West Broadway, New York City.



Motor Driven Machine for Engraving Dies, Built by the Keller Mechanical Engraving Company, New York City.

The ingenious motor driven engraving tool reproduces on a steel blank, which is later hardened to form the die, the design of the metal pattern carried on the revolving face plate at the right of the illustration. The die itself, undergoing the process of cutting, is shown on the smaller chuck near the center of the machine. Both the pattern and the work revolve at the same speed, while the double pivoted tool arm, which is carried on a bracket at the opposite end of the machine from the pattern, is fed back and forth across both, the tracing stylus following the relief of the pattern. The engraving cutter, located nearer the pivot, thus shares proportionately the movement of the guiding point and reproduces faithfully the various features of the design on a diminished scale. The cutting tool is not dissimilar to an acutely sharpened cannon drill and revolves at a speed of from 5000 to 8000 rev. per min., being belt driven from the 1-3-hp. motor manufactured by the Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., which is mounted on the tool arm.

The rotation of the work and the pattern, as well as the motion of the tool arm across the work, are both accomplished at comparatively slow rates to insure more accurate and detailed work. It is evident that as the cutting operation nears the periphery of the die some reduction in the rate of the rotative speed of the work must occur if the die is to be as well finished near the edges as at the center. To secure this necessary speed reduction recourse is had to a parabolic speed governor constructed on the flyball principle, but having its maximum permissible speed controlled through a rod and lever from a special cam bolted on the vertical slide. The friction clutch in the governor thus remains close until the maximum allowable speed as determined by the cam shape is attained when it releases, thus keeping the rotative speed within the proper predetermined limits. The rotation of the face plate carrying the pattern and the die holding chuck is accomplished by the 1¼-hp. Westinghouse motor on the floor at the left of the machine. This motor also furnishes the required power for the swing of the tool arm. It is said that the Westinghouse motors were chosen for driving these engraving machines because of their light weight in proportion to their output, efficiency and economy, characteristics which were especially desirable in the small motor mounted on the pivoted tool arm.

Two cuts are ordinarily made in sinking one of these dies, a coarse tracing point and a comparatively large drill being employed for the first cut, which roughs out the blank by following the larger details of the pattern. This relieves the fine cutting point used for the finishing cut of the removal of too much of the thick metal, which would render it too dull for the fine work. During the second or finishing cut a very fine tracing point is used and the cutting tool is sharpened to a diameter proportionately less than the tracing stylus in the same ratio as the reduction of the pattern.

For very deep relief with steep slopes the tracing point itself is sometimes revolved to enable it to climb more easily. The pressure on the tool arm, which holds the engraver and the tracer against their respective surfaces, is supplied by a weight of a few ounces, which is attached to the extreme end of the arm by a cord running over a pulley. This pressure must be very light and adjusted with some care to enable the tool arm to follow the design closely and yet not be enough to cause the tracer and the engraving tool to dull rapidly.

The patterns usually employed are of hardened plaster or cast bronze electros made from plaster molds of the model originally prepared by the artist and are several times the size of the finished die, thus enabling considerable refinement of detail to be secured in the finished work. Although the tool motion is extremely sensitive, hard patterns have been found to give the best results for reproducing with the mechanical engraving machine as the details of the pattern can be followed more accurately. When sheet metal is to be stamped the dies are usually made in pairs, upper and lower relief. These cameo and intaglio dies are backed with reversed reproductions of the patterns made from plaster casts which are themselves car-

ried through to hard patterns in the usual way. This machine also provides an interesting automatic method for gaining relief in a pair of dies, as the cutting away which must be done on the highly inclined surfaces of the backing die in order to make room for the metal of the stamping is called. The pattern for the backing die is a reversed duplicate of the other in all respects, but when the die itself is cut a tool which is larger than the tracing point is used, so that by side cutting it removes material beyond the traced surface and thus accomplishes the effect of relief.

The tool is capable of performing many allied operations requiring a variety of adjustments. For example, should a die become broken in use the parts have merely to be clamped together and the machine set to reproduce on a one to one ratio. Thus a solid new die, the exact duplicate of the damaged piece, is quickly turned out. By varying the speed ratio between the pattern and the work a simple pattern, or some portion of a design, such as a scallop, can be multiplied on the work as many times as the pattern revolves faster than the work. An example of this adaptation was afforded by a piece of work recently turned out by one of these machines, where it was necessary to mill out the blades and steam passages for an experimental turbine. First the theoretical curve of the blade was accurately laid out and a large pattern made to conform to this shape. This pattern was then placed in the machine and with the engraving tool set very nearly at the fulcrum several hundred little blades of the turbine were accurately milled out of a solid block, each one exactly duplicating the theoretical curve of the pattern. In addition to cutting dies for metal stamping, the machine can also be used for making dies for coins, medals and other similar work, and the quality of the product turned out is said not only to rival, but outclass, that produced by the most skillful hand operators.

Valve Seating Tools

The Valve Seating Tool Company, Southport, Conn., has been organized with a Connecticut charter to manufacture portable electric valve seating tools and drill press and hand valve seating tools. B. A. Bulkley is president; J. W. Perry, treasurer, and William D. Sherwood, mechanical engineer. The product is the design of Mr. Sherwood.

The portable tools are electric driven and of two forms. One has an oscillating movement only, suitable for grinding and seating any form of poppet valve. It runs at high speed and does the work now being performed by hand, at a saving of labor cost. The other form is a combination tool having both an oscillatory and rotating movement, as determined by the operator, which makes it a tool for seating valves and also one which can be used for drilling, polishing, &c. A flexible shaft is fitted to the apparatus as a special equipment. The drill press tool is made for use in a drill press and will do the first seating operation in the machine shop, as it also has an oscillating movement like the portable type. The hand tool is made to seat valves by means of a crank which turns completely around, but gives an oscillatory movement to the valve tool. The company is at present having the machines built under contract by outside parties, but expects to manufacture for itself later.

Governor Draper of Massachusetts, has appointed a commission to investigate the general subject of workmen's compensation for injuries sustained during their employment. The commission was created by the Legislature and will report at the next session, in 1911. James A. Lowell, Newton, is chairman, and Amos W. Saunders, Clinton, is secretary. Carroll W. Doten, professor of economics at the Massachusetts Institute of Technology, has been appointed chief investigator and will do the greater part of the research work.

The New Buffalo Electric Forge Blower

The electric forge blower, illustrated herewith, is a new type known as the Buffalo Universal blower which has been brought out by the Buffalo Forge Company, 490 Broadway, Buffalo, N. Y. The name Universal is applied to the blower because of its adaptability, the motor being of such a design that it will operate efficiently and equally well on any 110-volt circuit either direct current or alternating current of any frequency. Fig. 1 shows a blower and motor suitable for use in connection with a forge already installed, while Fig. 2 illustrates a forge equipped with the blower inverted, which gives a short straight blast directly into the tuyere iron.

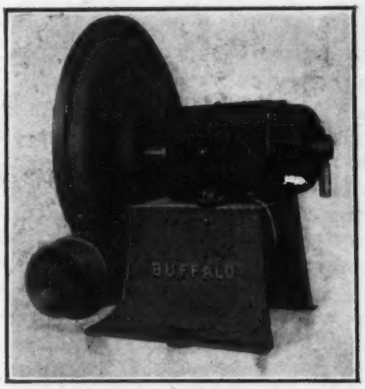


Fig. 1.—The New Universal Electric Forge Blower, Made by the Buffalo Forge Company, Buffalo, N. Y.

In addition to the adaptability of the motor for use on either direct or alternating current circuits, the motor possesses other advantages. One of these which distinguishes it very markedly from all other motors operating an alternating current circuits is that its speed is entirely independent of the number of poles of the motor and the frequency of the current. With an ordinary alternating current motor it is stated that it is impossible to get a speed of more than 1500 rev. per min. on a 25-cycle circuit, while this motor has a maximum speed of 4000 rev. per min. on this or any other circuit of the same voltage. Another unusual characteristic of the motor is that a variation in speed can be obtained just as easily when the motor is operating on an alternating current circuit as when on a direct current one. This, the maker claims, is the peculiar feature that renders the motor so satisfactory for forge blower work, as the speed can be adjusted by a rheostat to suit the kind of work being done on the forge. In the point of the amount of power consumed this motor is also very satisfactory, as it is claimed that not more than 1-25 hp. is required to serve one medium fire at an average cost for the current consumed of about 3 cents per day.

Fig. 2.—Forge Equipped with New Buffalo Electric Forge Blower.

The Federal Coal Company has sold to the Keystone Coal & Coke Company, Greensburg, Pa., 3040 acres of coal land in West Virginia for $1,050,000 in cash.

German Open Hearth Processes

Practice at Various Works Using Direct Metal and Ore—An Inroad Upon Basic Bessemer Operations

At the recent International Congress of Mining and Metallurgy at Duesseldorf, Germany, a paper was read before the Section of Practical Metallurgy on "The Pig Iron-Ore Process in Germany." The author is R. Genzmer, general manager of the Julienhuette in Upper Silesia. This paper was abstracted briefly in our report of the International Congress in *The Iron Age* of July 14, but its importance calls for a fuller synopsis, which is given below.

Owing partly to the increasing scarcity of scrap it has become necessary to develop open hearth processes in Germany to work charges cheaply and quickly, consisting either of pig iron alone or of a large percentage of pig iron. These depend upon using the oxygen of rich iron ore to remove the impurities from the pig iron, the action being assisted by the oxidizing power of the flame. A modification has been introduced owing to the use of pig iron in the molten condition. This was first done on a large scale at Donawitz, Austria, in 1893, and has already been followed by a number of German plants. Indeed, it is possible that the open hearth process, in Germany as in the United States, will one day surpass the Bessemer process. This is more than possible because the phosphorus in the pig iron can be as conveniently removed by some of the newer processes, although it was formerly believed the basic Bessemer was the best. Since the capacity of the furnaces has been so increased that productions of 150 to 200 tons per furnace per day have been reached, the consequent lowering in production cost has itself brought about an active competition to the basic Bessemer.

In Germany the following forms of the pig iron and ore process are in use:

1. Molten pig iron of low and medium phosphorus used direct from the blast furnaces.
2. As above, but with the interposition of an ordinary heated mixer.
3. As above but with partial refining in the mixer.
4. The Hoesch process, a modification of the Bertrand-Thiel, for molten pig iron with high phosphorus.

As neither the Talbot nor the duplex process is in use in Germany these are not taken into consideration. Following a statement of advantages which the open hearth process offers over the basic Bessemer, comes a list of 11 plants where molten metal is used in open hearth furnaces. Then the four processes given above are taken up in order.

1. Process Using Direct Metal of Low and Medium Phosphorus

If the phosphorus exceeds 1 per cent. the process cannot be worked, especially with a small amount of scrap and a stationary furnace, when very good quality is desired. Of the plants using this process the Hubertushuette in Upper Silesia, is particularly worthy of mention, because the furnaces are heated almost altogether with coke oven gas. There are three furnaces, two of 22 tons and one of 25 tons capacity. Molten pig iron has been used since December, 1903. The first method was to simply bring the metal over in 15-ton ladles from the higher level of the blast furnaces to the proper position in front of the open hearth; a tapping hole was opened in the bottom and the metal run through a trough. One result of this rather crude practice was a desulphurization of the metal, sometimes amounting to 30 per cent. Now an 18-ton tilting ladle is used.

First ore, lime and scrap are charged, and then molten pig iron in amount from 50 to 60 per cent. From time to time, however, charges are worked without any difficulty of molten metal alone. In Table I. are given analyses showing the course of a typical charge where pig iron alone is used:

Table I.

	Analysis of metal.					Analysis of slag.				
Time.	C.	Mn.	P.	Si.	S.	SiO_2.	FeO.	MnO.	P_2O_5.	Remarks.
12.45	3.61	2.32	0.67	1.890	0.044	....	....	....	...	Additions finished.
1.45	2.72	0.038	0.005	0.500	0.030	20.99	33.25	10.86	7.33	Warm and boils.
2.15	2.45	0.046	0.035	0.050	0.030	20.98	33.70	11.00	7.30	Begins to foam.
2.45	2.34	0.046	0.027	0.031	0.028	21.15	30.14	11.29	6.96	Warm and foaming.
3.15	1.94	0.054	0.020	0.042	0.026	22.35	24.47	11.68	7.59	Foams and is colder.
3.45	1.76	0.061	0.040	0.065	0.026	23.66	19.02	11.91	7.81	Foams and is colder.
4.15	1.68	0.084	0.044	0.033	0.030	23.83	15.57	12.24	7.95	Foams and is colder.
4.45	1 17	0.154	0.065	0.053	0.026	24.55	11.12	12.19	7.40	Cold.
5.00	1.14	0.199	0.094	0.035	0.034	25.76	9.57	11.80	7.21	Warmer and boils.
5.15	0.82	0.261	0.140	0.017	0.028	....	....	....	...	
5.45	0.71	0.307	0.138	0.015	0.028	22.67	7.44	10.43	6.41	Warmer and boils.
6.00	0.61	0.192	0.051	0.031	0.040	21.32	11.46	9.67	5.43	Warmer and boils.
6.20	0.375	0.253	0.019	0.015	0.036	22.56	9.90	9.28	6.89	Warmer and boils.
7.00	0.09	0.261	0.059	0.010	0.030	21.87	10.57	8.38	6.30	Carbon low enough.
7.15	0.084	0.269	0.035	0.020	0.038	21.17	10.34	7.95	6.21	
7.30	0.089	0.499	0.067	0.004	0.042	20.29	9.45	9.24	5.73	Steel.

The charge consisted of 49,385 lb. of molten metal, 10,360 lb. of Swedish magnetite and 1985 lb. of south Russian ores. From 1.45 to 5.00, 3 to 4 per cent. of lime was added. At 5.45 880 lb. of south Russian ore was added, and the same amount at 6.20. At 7.15 353 lb. of ferromanganese was thrown in, and the charge was tapped at 7.30. The reaction takes place between the ore and the molten metal and is quite lively; indeed, if the ore has been thoroughly warmed for a long time in the furnace it may become explosive. A foaming slag is formed and the ore is dissolved in about an hour. Very often, and especially with a pig iron high in silicon and carbon, the slag runs out of the doors. To avoid too large a loss of iron this slag must be charged back into the furnace some time later.

The course of removal of the impurities may be plotted, taking the figures and times of Table I as a basis. It will be seen that the manganese and phosphorus are quickly removed, but subsequently re-enter the metal. After working in this way for several years the need of a mixer has become very apparent. The iron changes in analysis so much that it is difficult to know just the right amount of ore to use. If too little is charged, the steel comes high in carbon, when

more ore must be added, and time is consumed. If too much is charged, the steel comes too low in carbon, when more iron or spiegel must be added; but there is danger of bad quality through overoxidation.

The best method of working is to charge the larger part of the necessary amount of ore. Then the molten metal is added. Towards the end of the foaming period about half the slag is removed. This has 15 to 18 per cent. iron, as opposed to from 10 to 11 per cent. in the final slag, so that the loss of iron is increased, but the quality of the steel is improved, for this slag contains the bulk of the phosphorus and sulphur.

In Table II. are shown some details of the practice at the Hubertus plant.

Table II.

			Amount molten	Output.			Use of material.		
		Production.	metal.	Ingots.	Scrap.	Ore.	Lime.	Coal.
Year.	Furnaces.	Tons.	%	%	%	%	%	%
1905	1 and 2	42,783	50-55	94	3.0	13	4.8	35.6
1906	1 and 2	47,184	50-55	96	3.0	14.8	3.3	31.8
1907	1, 2 and 3	61,340	50-55	96	3.0	15.9	4.8	25.0
1908	1, 2 and 3	51,214	50-55	96	3.0	11.7	3.6	18.7
1909	1, 2 and 3	26,934	100	101.85	3.15	11.6	4.7	17.0

The figures for 1909 only cover six months. The output is in percentage of the metal charged, not reckoning the ore, and the percentages of ore, lime and coal are with regard to the weight of good ingots.

2. Process with Molten Pig Iron of Low and Medium Phosphorus, with the Use of a Heated Mixer

The chief part of a mixer is to serve as a collection apparatus and as a desulphurizer. One plant where this method has been in use for four years is the Julienhuette, Upper Silesia. The mixer has a capacity of 150 tons and is electrically tilted. The blast furnace metal and slag are charged and discharged on the same side, and the mixer metal poured out on the other. It is heated with producer gas, and the air alone passes through the regenerators. The temperature, therefore, is not high. The coal consumption is about 8 tons in 24 hours, from 400 to 500 tons of pig iron passing through in this time.

The chief advantage of the mixer is to give uniform iron from the greatly varying ores which are in use, and at the same time considerable desulphurization takes place. Records are shown covering two days and giving the increased uniformity and better analysis obtained. Further advantages are that one avoids having to use in the open hearth the varying amounts frequently cast by the blast furnace. Then if a heat comes low in carbon the exact small amount of liquid pig iron is quickly supplied and much time saved. In this way, also, overoxidation is guarded against, which must be taken very carefully into consideration in the direct process.

The practice at Julien is similar to that at the Hubertus plant, but in almost every case a part of the slag is removed during the foaming period. The small loss of iron in the slag is compensated for by the markedly increased tonnage, while the slag is used to advantage in the blast furnaces. The plant has six furnaces, each of 40 tons. Usually four heats per furnace are made in 24 hours and the output varies from 150 to 160 tons. The slag removed during the process shows from 20 to 30 per cent. iron, about 20 per cent. silica, from 1.5 to 2 per cent. phosphorus and 8 per cent. manganese. The final slag has about 10 per cent. iron, 20 per cent. silica, 0.5 per cent. phosphorus and from 6 to 7 per cent. manganese.

3. Process with Iron Similar to No. 2, but Using the Mixer as a Preliminary Refiner

This process is practiced at the Georgsmarien plant, Osnabrueck, the Huestener plant at Huesten, and the Bethlen-Falva plant is building a mixer to hold from 150 to 175 tons. The first mentioned plant has five 40-ton furnaces and a mixer holding 150 tons. A 250-ton mixer is in course of construction. The mixer at present in use is a Wellman tilting furnace, and its mechanical operation and equipment are therefore familiar to American furnacemen. Blast furnace gas is used, the particular method of application being kept secret. After the blast furnace metal is poured into the mixer from 5 to 6 per cent. of ore and from 3 to 4 per cent. of lime are added. The metal averages 3.8 per cent. carbon, 2.75 per cent. manganese, 0.4 per cent. phosphorus, 0.05 per cent. sulphur, 0.6 to 1 per cent. silicon and 0.4 per cent. copper. The amount of ore mentioned above has been found to give better results than a larger amount. About 11 per cent. is then necessary in the open hearth furnaces, the total percentage being from 16 to 17 when the charge is about 70 per cent. iron and 30 per cent. scrap. In February, 1909, the mixer was in constant operation 26½ days out of 28 and 61,400 tons of pig iron were treated. The slag contained 6.86 per cent. iron. Swedish magnetite was used containing 67 per cent. iron and 90 per cent. of this was reduced and entered the metal.

The average analysis of the mixer metal was 3.5 per cent. Carbon, 1.2 per cent. Manganese, 0.08 per cent. Silicon, 0.15 per cent. Phosphorus and 0.02 per cent. Sulphur. With the use of such metal the reactions in the open hearth are naturally less violent and the life of the furnace is increased. From the records the output of two furnaces and one mixer is equal to the output of three furnaces with ordinary iron. It must be remembered that the mixer, with proper care, lasts two years, and the repair cost is very low. Further advantages of the mixer are:

1. Lower labor costs, for two men can handle it.

2. Lime, dolomite and ore consumption are greatly reduced.

3. The high percentage of good ingots, the scrap being immediately thrown back, amounting to 103 to 104 per cent. When the second mixer is built it is hoped with both mixers and three furnaces to double the production and make from 786 to 835 tons a day.

4. The Hoesch Modification of the Bertrand-Thiel Process for Iron with High Phosphorus

This process is followed at the Hoesch works in Dortmund and at Phoenix and Hoerde in Westphalia. The latter plant uses cold basic Bessemer iron. Several other plants are introducing it. The following data are taken from the excellent recent papers of Dr. Peterson and Dr. Springorum. The best results are obtained when the silicon does not exceed 0.06 per cent. and the manganese 2 per cent. in the blast furnace metal. The practice at Hoesch is to charge high phosphorus Swedish magnetite, roll scale and lime into a 30-ton furnace. Of mixer metal, 20 to 22 tons is then added. In two to three hours the ore has dissolved and the bath is sufficiently warm. The whole is tapped into a ladle, which is held at an angle, so that the high phosphorus slag can easily overflow into a vessel at the side. This slag contains from 20 to 25 per cent. P_2O_5, of which from 80 to 90 per cent. is soluble in citric acid. It is sold for from 3½ to 5 marks per ton. The tap hole of the furnace is closed, the necessary amounts of spathic ore, lime and scrap added, and the refined metal poured in. In about two hours the steel is finished. The characteristic metallurgical features of the process are these: In the first part the silicon and manganese are almost completely removed and the phosphorus to a very large extent, while the carbon is only about half oxidized. In the second period the rest of the phosphorus and the necessary carbon are removed. Sulphur is taken up by the slag during both periods. The exact chemical history of a heat is given in Table III.

Table III.

Time.	Analysis of metal.—Per cent. C.	P.	Mn.	Si.	S.	Analysis of slag.—Per cent. FeO.	MnO.	Al_2O_3.	CaO.	MgO.	P_2O_5.	S.	SiO_2
First Period:													
12.15	3.28	1.86	0.96	0.32	0.132	....	....	...	....	...	....	....	....
1.10	2.47	0.59	0.17	Tr.	0.102	....	....	...	....	...	....	....	....
1.30	1.90	0.47	0.22	Tr.	0.098	10.25	5.03	1.36	41.56	4.32	22.85	0.069	12.2
1.40	1.65	0.37	0.22	Tr.	0.098	7.26	4.96	1.38	45.48	4.00	22.26	0.124	11.8
2.05	1.46	0.26	0.34	Tr.	0.082	4.67	3.93	1.60	48.86	4.00	22.13	0.138	11.4
Second Period:													
3.50	0.38	0.09	0.29	Tr.	0.100	19.64	13.49	3.17	33.64	6.92	6.25	0.110	12.2
4.10	0.20	0.05	0.23	Tr.	0.089	15.78	12.08	3.00	35.78	6.70	6.70	0.165	15.4
4.30	0.09	0.045	0.26	Tr.	0.090	15.83	8.88	2.32	43.88	6.00	5.50	0.289	13.2
4.45	0.07	0.035	0.26	Tr.	0.080	14.13	10.19	2.21	43.79	6.10	5.57	0.206	14.2
5.05	0.06	0.035	0.27	Tr.	0.078	16.23	8.32	2.20	45.30	5.90	5.55	0.275	14.0
5.10	0.04	0.03	0.25	Tr.	0.077	17.20	7.67	2.00	46.19	6.12	5.15	0.316	13.1
5.15	0.08	0.04	0.47	Tr.	0.067	17.03	10.25	1.90	46.28	5.92	5.00	0.344	12.4

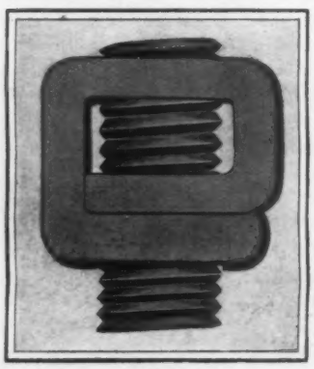
The original charge consisted of 51,323 lb. of mixer metal, 4144 lb. of lime, 7583 lb. of Swedish ore and 1697 lb. of roll scale. At 2.35 the following was charged in the emptied furnace: 4806 lb. of spathic ore, 11,931 lb. of scrap and 2843 lb. of lime. At 4.30 231 lb. of roll scale was added and 352 lb. of lime at 4.45, followed by 454 lb. in 10 minutes. At 5.10 440 lb. of ferromanganese was thrown in, and the heat was tapped at 5.15. In the year 1908-1909 74.72 per cent. of pig iron was used and 24 per cent. of scrap, and the output was 49,745 tons of good ingots. The percentage of output, based on metal charged, was 104.42. Based on this good showing, two or three new furnaces are to be built of 50 to 60 tons capacity.

The pig iron ore process is also in use at Phœnix, and of course at Hoerde. From the results given under the above four headings it may be seen that in Germany iron with 1 per cent. phosphorus, indeed with 1.5 per cent. phosphorus, can be worked profitably. It thus opens up a field for vast quantities of iron ore, which at present would give iron incapable of use by the ordinary open hearth process or the basic Bessemer.

G. B. W.

A Spring Loop Nut Fastener

The Loop Nut Mfg. Company, Madison, Wis., is manufacturing a special type of spring fastening known as the loop nut which is shown in the accompanying engraving. This fastener consists of a strip of steel folded as shown, which has a lateral opening and possesses sufficient tension to throw the threaded ends slightly out of alignment, thus taking up any slack between the bolt and nut. This fastener was invented during the winter of 1907-08 by W. C. Schoelkoff, the general manager of the company, in response to a demand for a device to regulate the stroke of the plunger of an oil pump. This was formerly done by the use of jam nuts which possess the disadvantages of being difficult to adjust and also liable to work loose.

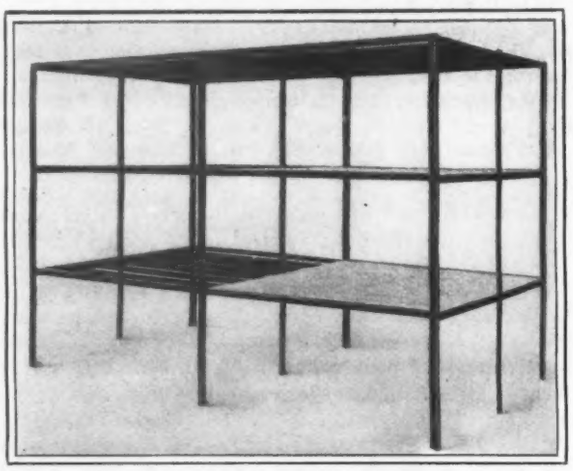


The Standard 1½-In. Spring Nut, Made by the Loop Nut Mfg. Company, Madison, Wis.

This nut, being made of one piece of metal, is not apt to get out of order and is very simple to manufacture. The special applications of this device are for fastening wire on the terminals of storage batteries, spark coils and commutators and in other places where spring washers and jam nuts are now used on gasoline engines, windmills, automobiles, railroad rails, locomotives, rolling stock and harvesting machinery. In addition to the standard type of fastening, which is the one illustrated, other special types are made for rail bolts and places where the screw does not occupy all the lateral opening and pass through the third transverse member of the fastener.

An Improved Pattern Storage Rack

The Manufacturing Equipment & Engineering Company, Boston, Mass., has recently brought out an improved type of pattern storage rack, designed more especially for wooden patterns, which possesses a number of valuable features, the chief of these being the shelves



A New Pattern Storage Rack Constructed Entirely of Angle Iron and Wire Cloth, Made by the Mfg. Equipment & Engineering Company, Boston, Mass.

which are constructed of No. 16 gauge galvanized iron wire cloth having a 2-in. mesh.

The wire cloth shelf has the important advantage of keeping the patterns from warping, as both sides are equally exposed to the air. This type of shelf allows the dirt to drop through to the floor, instead of accumulating on the patterns, and also allows the light to pass through the vacant spaces where the shelves are not covered with patterns, thus making it easy to locate patterns on the lowest shelf. These shelves are especially framed for securing rigidity and the minimum amount of material to make the rack stiff and sufficiently strong to carry any wooden pattern load. All the shelves are complete units, and can be removed, adjusted from one hight to another or new shelves inserted without any change in the main frame. This is built of angle iron posts, so constructed that any section can be removed from the main rack or new ones added at any time.

This type of rack is self-supporting, is not attached to the building in any way and can be moved as often as desired. In other words, these racks admit of all of the adjustments required and can be built over to suit the different sizes of patterns whenever it is necessary. It reduces the cost of metal shelving to a minimum and decreases the fire risk in pattern storage, it is stated, even to the extent of doing away with insurance when these racks are used in fireproof buildings. Although these racks are more especially designed for wooden patterns, they can be easily adapted to metal patterns by using heavier gauges of wire cloth, and are being installed in many of the leading manufacturing plants throughout the country.

The Standardization of Motor Drives for Machine Tools

Report of Progress of the Joint Committee of the Machine Tool Builders and the Association of Electric Motor Manufacturers

At the Rochester convention of the National Machine Tool Builders' Association the Committee on the Standardization of Motor Drives for Machine Tools, consisting of P. A. Montanus, F. R. Ratliff and A. L. De Leeuw, made a report of progress of its negotiations with the committee of the American Association of Electric Motor Manufacturers. Seven points have been agreed upon, as published in the official report, which has just been issued, but the final adoption of the new standard practice by the two associations has not yet come up for formal action. The schedule as agreed upon is as follows:

1. *Horsepowers.*—It is thought that the following horsepowers will meet practically all the requirements of electric drives for machine tools: 1, 1½ (for D. C. only), 2, 3, 5, 7½, 10, 15, 20 and 25. Though it was agreed that horsepowers more than 25 and less than 1 are used, it was not thought advisable to embody them at the present in the attempted standardization, but it was held out that they might be embodied some time in the future among the standardized sizes. The chief consideration was to limit the demands to the lowest practical amount, so as not to defeat the object of your committee at the start by insisting on more than the electrical people could grant.

2. *Voltage.*—It is recommended that for D. C. motors 115 and 230 volts be adopted as standard, and for A. C. motors 110 and 220 volts.

There is now a good deal of confusion as to voltages for D. C. motors. The motor manufacturers have reached an agreement among themselves as to these voltages, and 115 and 230 voltages recommended by them represent the nominal voltage of the system, and not the real voltage at the motor.

3. *Horsepower Ratings for Drives.*—It is recommended that the horsepower ratings for machine tool drives be the standard ratings of the American Association of Electric Motor Manufacturers—*i. e.*, (a) that motors be given the continuous constant horsepower rating where approximately standard load conditions exist; (b) for adjustable speed motors used for intermittent service the standard two-hour continuous duty rating be used for ordinary shop conditions, and that the name plates of such motors indicate the time as well as horsepower ratings of the motor, and further that the horsepower be figured at the high as well as the low speed for adjustable speed service.

4. *D. C. Motors.*—It is the recommendation of the Joint Committee that constant speed motors, adjustable speed with a range of 2 to 1, and adjustable speed motors with a range of 3 to 1, be included in the attempt at standardization. It is the opinion that this will cover practically all the requirements of the majority of machine tool manufacturers, and these ratios are recommended for the guidance of tool and motor designs.

This does not exclude the occasional use of motors with a different speed range, such as 4 to 1, or even more, but it was the opinion of the committee that motors with a higher range of speed than 3 to 1 are not used to a sufficient extent and are not so absolutely necessary for machine tool construction, as to include them among the standardized motors.

5. *Speeds.*—The following table of speeds is recommended as the standard for adjustable speed D. C. motors:

Hp.	2:1	3:1
25	900—450	900—300
20	900—450	900—300
15	1,200—600	1,200—400
10	1,200—600	1,200—400
7½	1,200—600	1,200—400
5	1,200—600	1,200—400
3	1,500—750	1,500—500
2	1,500—750	1,500—500
1½	1,500—750	1,500—500
1	1,500—750	1,500—500

The tendency of the electrical manufacturers is of course toward higher speed motors, but it was thought desirable by your committee to hold out for lower speeds, on account of mechanical difficulties in gear and chain driving when higher speeds are used. The schedule as given above is a compromise, and will allow of motor drives with reasonable linear speed of first driving gears, and limits the number of revolutions of the motor to within the limits given by chain makers for the proper speed of their chains.

6. *A. C. Motors.*—It is recommended that the following table of polyphase 60-cycle A. C. motors be adopted:

25 hp	900 and 600	5 hp	1,200
20 hp	900 and 600	3 hp	1,200
15 hp	900 and 600	2 hp	1,200
10 hp	1,200 and 600	1 hp	1,800 and 1,200
7½ hp	1,200 and 900		

7. For the consideration of the constant speed A. C. motors, 60 cycles is to be used as the basis.

Points 8 up to 15 were not jointly discussed by the Electric Committee of the Motor Manufacturers' Association, and are given here below, to show you in which direction your committee wishes to accomplish the standardization.

8. *Shaft Diameter.*—It is recommended that the shaft diameter be figured according to the formula $D = C\sqrt{\frac{H.P.}{S}}$ in which C is a constant to be agreed upon by motor manufacturers, D the diameter, and S the speed; it is further desired that all diameters up to and including 1½ in. be given in ⅛ in., and all diameters above 1½ in. be given in ¼ in.

9. *Length of Shaft.*—It is recommended that there shall be a fixed proportion between diameter and length; the constant to be determined by the motor builders. Further, that the shaft be rounded at the end.

10. *Keyways.*—It is recommended that keyways be made for square keys, and that the key be equal to one-fourth the diameter of the shaft.

11. *Driving Fit.*—It is recommended that there be added to the standard dimensions of the shaft .0005 in. for every ½ in. diameter of the shaft or fraction thereof.

12. *Variation.*—It is recommended that shafts shall not be under the specified size, but may exceed same by .0005.

13. *Hight of Center.*—The hight of center to be given in full ¼ in., and shall not be less than figured dimension, but may exceed this dimension by one thirty-second.

14. *Clearance Circle.*—It is recommended that the clearance circle around the motor shall have a diameter of ½ in. less than twice the center hight.

15. *Base.*—All motors to be held down by four bolts. Bolt holes to be drilled one-sixteenth above size of bolt required. Bottom of motor to be planed parallel with the shaft of motor. It is further recommended that the bolt holes be placed in a configuration of constant proportions, preferably in a square, and that the dimensions of this configuration be made a function of the horsepower divided by the speed, and further that all dimensions be given in the nearest higher ¼ in. The feet of the motor should extend beyond the body sufficiently to allow for drilling and reaming of dowel pinhole while motor is in place.

The Du Charme Clamping Devices

Ability for Instant Adjustment Is a Special Feature

The Du Charme Wrench & Novelty Mfg. Company, Johnstown, Pa., has developed a line of clamping devices such as wrenches, planer clamps and pipe vises, some of which are illustrated herewith. The wrenches are the result of 10 years' experimenting, and are offered by the manufacturer as one of the most practical wrenches manufactured. Figs. 1, 2 and 3 show three different styles of drop forged steel wrenches manufactured by this company; Figs. 4 and 5 are two views of the Du Charme adjustable planer clamp, and Fig. 6 illustrates one of a line of open top pipe vises.

The self-adjusting wrench illustrated in Fig. 1 is built with but three parts, and is said to be simple, strong and durable, meeting every requirement of the old type of monkey wrench with the slow method of adjustment eliminated. The three pieces of the wrench are the body, a swiveled head working on a cam joint, and a loose jaw which responds instantly to the motion of the hand of the operator. This wrench will adjust

Fig. 1.—Self-Adjusting Wrench.

Fig. 2.—Alligator Wrench.

Fig. 3.—Turret Head Wrench.

Three Types of Wrenches Made by the Du Charme Novelty & Mfg. Company, Johnstown, Pa.

itself to any size pipe or nut from ⅛ in. in diameter to the full capacity of the tool.

The quick adjustment of an alligator wrench has never been accomplished before to the satisfaction of the user, it is stated, because too many sizes of wrench were required. In the one illustrated in Fig. 2 the maker claims to have overcome this objection and to have produced a wrench that can be instantly adjusted to fit any sized pipe or nut by the single adjustment of a set screw which is easily applied. The jaws are said to possess such strength as to be able to meet the demands of the hardest and heaviest work they may be called upon to perform.

Fig. 3 illustrates the turret head wrench, so called because of its resemblance to the turret head of a lathe. This tool consists of five standard sizes of jaws on one handle, which are held in place by a spring controlled by the small button near the upper end of the handle. It is claimed for this tool that it will prove the handiest in any kit, and it is especially adaptable to the chauffeur and automobile owner where room is most desirable. The locking spring clamps the jaws firmly in position, thus making the tool rigid and free from slipping and a perfect jaw wrench at any adjustment for any angle. It is also capable of being used as a straight or an S wrench.

The Du Charme adjustable clamp in Figs. 4 and 5 is designed for holding materials on the bed of a planer, drill press or other flat bed machines. These clamps can be instantly adjusted to any hight. A sliding motion of the lever to which the jaw is attached, either up or down, places the clamp in the desired position, and another movement of the lever clamps the work securely and solidly with no possible chance of slipping. As will be noticed from Fig. 5, the base of these clamps is of such a shape as to slide readily into the T-slot of the machine on which the work is to be fastened. These clamps can be placed in any desired position and can be used either singly, in pairs or in any required combination to hold the work in position.

Fig. 4.—Detail of Du Charme Clamp for Flat Bed Machinery.

The open top pipe vise shown in Fig. 6 is especially desirable for new work where a vise is needed on the job because of its adaptability for instantaneous adjustment and its light weight combined with strength. The special feature of the vise is its instant adjustment from ⅛ in. to its capacity, which is accomplished by a single movement of the jaws and hand lever. This movement grips the vise securely and the same operation releases it as quickly. In fact, it is stated this vise can be adjusted in less time than a single turn of the ordinary screw vise can be made. In common with all the other tools manufactured by this company, the pipe vise is made of high carbon steel with drop forged movable jaws, and the gripping jaws are of tempered high carbon steel. Four sizes of vise in all are built, the minimum capacity of the smallest being ⅛ in. and the maximum of the largest 6 in.

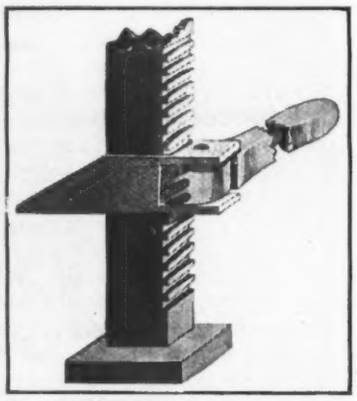


Fig. 5.—Du Charme Planer Clamp.

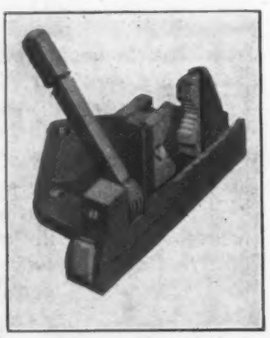


Fig. 6.—The Du Charme Open Top Pipe Vise.

The new battleship Rio Janeiro, which is being built by a British firm of shipbuilders for the Brazilian Government, will, according to *Engineering*, be far the largest in the world, displacing 32,000 tons, and mounting 12 14-in. guns. The cost will be approximately $14,500,000. The Rio Janeiro will be almost twice the size of the original Dreadnought, which displaces 17,500 tons. Great Britain's biggest warship, the Lion, which is to be launched in August, has a displacement of only 26,000 tons.

The Kane & Roach Channels

Machines for Forming Special Shapes from Flat Stock Cold

Two of an extensive line of special machines built by Kane & Roach, Niagara and Shonnard streets, Syracuse, N. Y., are illustrated in the accompanying engravings. These machines are what the maker terms channeling machines and are used for making up almost any sort of shape from cold flat stock. Figs. 1 and 2 are front and rear views, respectively, of a machine for ordinary work, while Fig. 3 illustrates a 4-roll channeling machine designed for handling very large and very wide work.

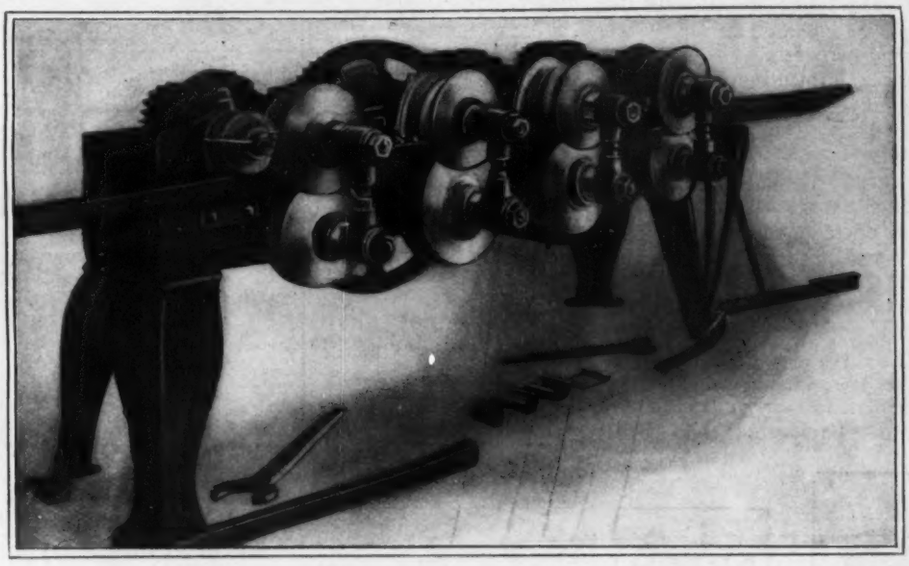


Fig. 1.—Front View of a Channeling Machine Built by Kane & Roach, Syracuse, N. Y.

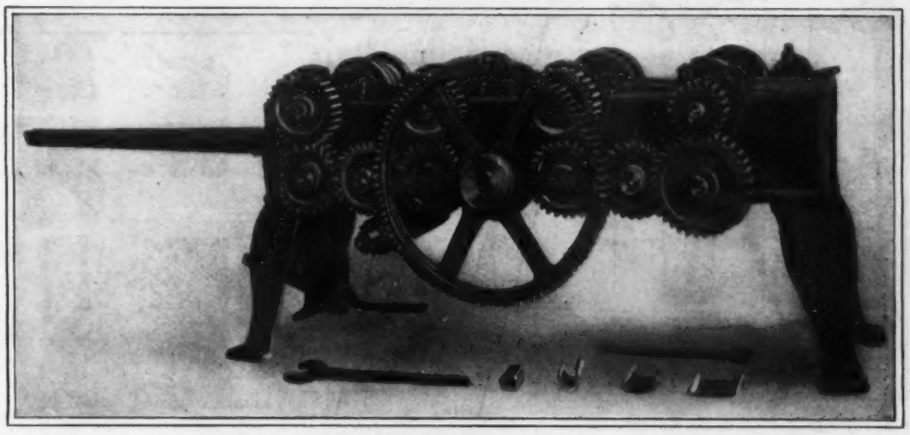


Fig. 2.—Rear View of a Channeling Machine for Forming Metal Shapes from Cold Flat Stock.

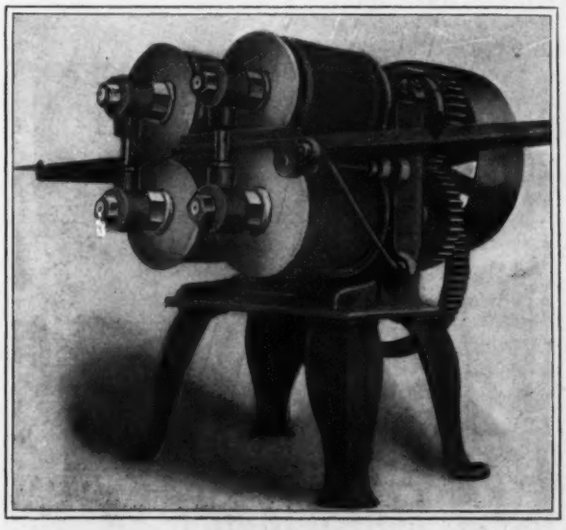


Fig. 3.—A Four-Roll Machine for Very Large and Very Wide Work.

The use of these machines is not confined to any one particular piece or one shape of metal. The cold flat stock can be formed into complete circles, such as tubes or bent to form channels or half circles, as the rims for clincher automobile tires. If desired, the metal can be turned out in a straight strip by equipping the machine with straightening rolls. In making the rims for automobile tires the forming of the flat bar into the proper shape for the rim and bending the shape thus formed into a circle can be done in one operation by putting on rolls of the proper shape and size.

In Fig. 1 a number of short pieces will be noticed lying on the floor. These are samples of the work turned out by the machine, and the first one at the right represents flat stock after passing through the first roll. The second and third pieces show the shape into which the next two rolls bend the piece, and the one at the left shows the form in which the finished product leaves the machine. This engraving also shows a bar of flat cold steel 6¼ in. wide by 3-32 in. thick being fed into the machine at the right and coming out bent into the finished shape at the left.

The 4-roll channel, illustrated in Fig. 3, handles very large and very wide work, and is intended particularly for a number of different lines of sheet metal work. Different sizes and shapes of rolls are furnished for it, which make it capable of rolling all shapes and sizes of cornices or other sheet metal articles. Both of these machines are built for belt or electric motor drive, as preferred, and the upper rolls can be adjusted up and down to provide for any decrease in diameter due to wear and also to take care of the different thicknesses of metal handled.

According to the *Marine Journal*, the Navy Department is dissatisfied with the skeleton masts of woven wire with which some 15 of our battleships have been equipped at an expense of $10,000 each. "The fact that so many ships were fitted with them before they had been thoroughly tried out in one or two vessels seems to evidence lack of foresight. The most serious drawback to this innovation is that on account of the altitude of the platform at the top there is an appreciable amount of vibration at certain speeds, and besides, the system of observation, calculation and communication is thereby a complicated one."

CURRENT METAL PRICES.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from store—

Refined Iron:

1 to 1⅝ in. round and square; 1½ to 4 in. x ⅜ to 1 in.	₩ lb 1.90¢
1½ to 4 in. x ¼ to 5-16	₩ lb 2.10¢
Rods—⅝ and 11-16 round and square	₩ lb 2.10¢

Angles:

	Cts ₩ lb
3 in. x ¼ in. and larger	2.10¢
3 in. x 5-16 in. and ⅛ in.	2.35¢
1½ to 2½ in. x ¼ in.	2.20¢
1½ to 2¾ in. x 5-16 in. and thicker	2.10¢
1 to 1¼ in. x 5-16 in.	2.20¢
1 to 1¼ x ⅛ in.	2.30¢
⅝ x ¼ in.	2.40¢
⅝ x ⅛ in.	2.50¢
⅜ x ¼ in.	3.55¢
⅛ x 3-32 in.	4.35¢

Tees:

1 in.	2.65¢
1¼ in.	2.45¢
1½ to 2½ x ¼ in.	2.15¢
1½ to 2½ x 5-16 in.	2.35¢
3 in. and larger	2.15¢
Beams	2.10¢
Channels, 3 in. and larger	2.10¢
Bands—1½ to 6 x 5-16 to No. 8	2.30¢
"Burden's Best" Iron, base price	3.15¢
Burden's "H. B. & S." Iron, base price	2.95¢
Norway Bars	3.60¢

Merchant Steel from Store—

	per lb.
Bessemer Machinery	1.90¢
Toe Calk, Tire and Sleigh Shoe	2.50@3.00¢
Best Cast Steel, base price in small lots	7¢

Sheets from Store—

Black

	One Pass, C.R Soft Steel.	R. G. Cleaned.
No. 16	₩ lb 2.90¢	3.00¢
Nos. 18 to 21	₩ lb 2.95¢	3.10¢
Nos. 22 and 24	₩ lb 3.05¢	3.20¢
No. 26	₩ lb 3.10¢	3.30¢
No. 28	₩ lb 3.20¢	3.50¢

Russia, Planished, &c.

Genuine Russia, according to assortment, ₩ lb 12 @14½

Patent Planished, W. Dewees Wood, ₩ lb A, 10¢; B, 9¢ net.

Galvanized.

Nos. 11 to 16	₩ lb, 3.20¢
Nos. 22 to 24	₩ lb, 3.55¢
No. 26	₩ lb, 3.75¢
No. 28	₩ lb, 4.10¢

No. 20 and lighter 36 inches wide, 25¢ higher.

Genuine Iron Sheets—

Galvanized.

Nos. 22 and 24	₩ lb ..5.75¢
No. 26	₩ lb ..6.25¢
No. 28	₩ lb ..7.25¢

Corrugated Roofing—

2½ in. corrugated.	Painted	Galvd
No. 24 ₩ 100 sq. ft.	$3.85	4.80
No. 26 ₩ 100 sq. ft.	2.95	4.00
No. 28 ₩ 100 sq. ft.	2.60	3.75

Tin Plates—

American Charcoal Plates (per box.)

"A A A." Charcoal:

IC, 14 x 20	$6.35
IX, 14 x 20	7.60

A. Charcoal:

IC, 14 x 20	$5.40
IX, 14 x 20	6.50

American Coke Plates—Bessemer—

IC, 14 x 20 107 lb	$4.40
IX, 14 x 20	5.40

American Terne Plates—

IC, 20 x 28 with an 8 lb. coating	$8.50
IX, 20 x 28 with an 8 lb. coating	10.50

Seamless Brass Tubes—

List November 13, 1908. Base price 18¢

Brass Tubes, Iron Pipe Sizes—

List November 13, 1908. Base price 18¢

Copper Tubes—

List November 13, 1908. Base price 22¢

Brazed Brass Tubes—

List August 1, 1908. 19½¢ ₩ lb

High Brass Rods—

List August 1, 1908. 14¼¢ ₩ lb

Roll and Sheet Brass—

List August 1, 1908. 14¼¢ ₩ lb

Brass Wire—

List August 1, 1908. 14¼¢ ₩ lb

Copper Wire—

Base Price. Carload lots mill 14 ¢

Copper Sheets—

Sheet Copper Hot Rolled, 16 oz (quantity lots) ₩ lb 18 ¢

Sheet Copper Cold Rolled, 1¢ ₩ lb advance over Hot Rolled.

Sheet Copper Polished 20 in. wide and under, 1¢ ₩ square foot.

Sheet Copper Polished over 20 in. wide, 2¢ ₩ square foot.

Planished Copper, 1¢ ₩ square foot more than Polished.

METALS—

Tin—

Straits Pig ₩ lb 35 @35¼¢

Copper—

Lake Ingot	₩ lb 14¾@15 ¢
Electrolytic	₩ lb 14½@14¾¢
Casting	₩ lb 14¼@14½¢

Spelter—

Western ₩ lb 6¼@6½¢

Zinc.

No 9, base, casks... ₩ lb 8 ¢ | Open ₩ lb 8¼¢

Lead.

American Pig	₩ lb 5 @5¼¢
Bar	₩ lb 6¾@6¾¢

Solder.

½ & ½, guaranteed	₩ lb 22 @22¼¢
No. 1	₩ lb 19 @19¼¢
Refined	₩ lb 17¼@17½¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Cookson	₩ lb ..@10¢
Hallett's	@10¢
Other Brands	@9½¢

Bismuth—

Per. lb $2.00@$2.25

Aluminum—

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting 24¢

Rods & Wire Base Price 31¢

Sheets Base Price 33¢

Old Metals.

Dealers' Purchasing Prices Paid in New York

	Cents ₩ lb
Copper, Heavy cut and crucible	10.25@10.50
Copper, Heavy and Wire	10.00@10.25
Copper, Light and Bottoms	9.00@ 9.25
Brass, Heavy	6.75@ 7.00
Brass, Ligh	5.50@ 5.75
Heavy Mechine Composit.on	9.25@ 9.50
Clean Brass Turnings	6.75@ 7 00
Composition Turnings	8 00@ 8.25
Lead, Heavy	.....@ 3.50
Lead, Tea	.....@ 3.25
Zinc Scrap	.....@ 3.75

Nicholson Files

Sales of good files should remind you
You can all avoid a "rut" —
Just by stocking up and selling
Files like these that *always cut.*

Some Hardware merchants get in the "rut" of stocking any kind of files just because they are *cheap.* But such files don't *sell* and are "dead stock" on their shelves.

TRADE NICHOLSON MARK U.S.A.

Nicholson File Company, Providence, R. I.